

meet the requirement of high speed printing the use of rotary press has developed while the increase of demand on the gravure and offset machines shows that the higher grade machines are popular. Manufacturing of high speed and high grade printing machines has now so advanced that not only import of these has come to be negligibly small, but domestic makes are exported to Manchoukuo, South China, the South Sea Islands, and India to a great extent.

Gauges and Optical Machinery Of all gauges those that have the greatest future prospect are perhaps electric gauges, to which optical and mechanical gauges will follow in the order named. At present the study is being directed mainly on gauges for aeroplanes, and there is a very keen competition among makers for their successful manufacturing. Gauges, which require exactness, are optical ones, and the authorities concerned seem to be directing their attention for the production of high-class optical instruments. In the past the manufacture of gauges was carried out by various makers in their own ways, no unified control on production was possible, and seriously hampered its development. The Department of Commerce and Industry appears meditating to impress upon the mak-

ers with the advisability of instituting an organ whereby to control the production and sales of gauges.

Various Tools and Implements The demand for various tools and implements in recent years has been very strong. Due to the lower exchange rate of yen, the price of imported tools and implements became very high which served as a great stimula for development of domestic manufacture. Technique of manufacturing these tools and implements has made a great advance, and most of imported ones are replaced by domestic makes. Demand on imported ones is restricted to those of superior class. Many new mills have sprung up, and tool and implement industry appears enjoying its golden age.

In addition to the above there are numerous other machines, instruments and tools, which are enjoying boom with more or less degree due to general industrial activities. Some of the more important ones are:

Welding and cutting appliances, dyeing machinery, conveyors, gears and gear cutters, stokers, cleaners, ball bearings, steel balls, various musical instruments, scientific instruments, etc., etc.

Production Production of all machinery and tools which come under this class follows:

PRODUCTION OF ENGINES

Year	Steam engines		Steam turbines		Internal combustion engines				Oil engines	
	No. produced	Value yen	No. produced	Value yen	Gas engines No. produced	Value yen	Light oil engines No. produced	Value yen	Oil engines No. produced	Value yen
1925				280,995		10,406		13,981,662		
1926	370			294,506		18,778		18,017,677		
1927	234			1,251,468		15,307		13,982,015		
1928	313			397,036		19,644		19,118,828		
1929	931	2,615,111	15	754,858	128	104,545	965	9,660,598	23,828	9,900,571
1930	74	298,341	42	2,220,460	575	340,416	1,337	11,852,363	104,854	9,671,130
1931	97	80,769	17	1,458,589	10	8,800	778	5,008,217	15,295	5,228,870
1932	77	150,006	86	1,022,760	103	76,472	2,371	20,587,362	16,558	4,420,307
1933	162	580,519	51	7,269,146	142	116,780	5,546	32,360,597	17,229	4,049,818
1934	105	617,215	102	6,893,407	54	15,948	4,866	19,784,471	53,889	6,856,672

Year	Internal combustion engines		Water wheels		Total	Production of fittings yen	Grand total yen			
	No. produced	Value yen	Turbine water wheels No. produced	Pelton water wheels No. produced						
1925		13,981,662		992	999,390	922,692	16,184,748			
1926		18,017,677		268	1,445,262	1,313,492	21,070,937			
1927		13,982,015		625	2,008,930	7,154,090	24,396,503			
1928		19,118,828		590	1,278,773	2,944,316	23,739,051			
1929	1,579	7,557,746	27,123,260	261	2,031,407	23	221,580	2,253,087	1,189,408	33,935,624
1930	2,274	6,759,923	29,723,832	115	1,890,568	17	35,811	1,926,376	2,207,825	36,377,837
1931	2,002	8,248,660	18,494,447	111	765,540	7	81,521	847,063	1,333,930	22,215,098
1932	1,783	5,790,541	30,874,682	173	675,847	1	1,492	677,339	1,493,765	34,118,552
1933	3,961	11,618,068	46,605,230	91	183,076	57	318,189	501,265	2,867,389	59,365,582
1934	4,151	15,267,978	41,925,069	164	1,319,476	21	133,348	1,452,824	3,483,848	54,372,363

PRODUCTION OF BOILERS

Year	Water-tube style		Cast iron		Others		Fittings and accessories yen	Machinery Total for producing gas	
	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen		yen	yen
1925		883		1,647,994				1,647,994	471,894
1926		869		1,630,391				1,630,391	328,505
1927		762		1,221,052				1,221,052	160,841
1928		1,482		3,028,145				3,028,145	108,198
1929	179	2,375,285	295	42,032	1,529	1,968,055	1,264,520	5,649,982	106,443
1930	143	2,573,598	374	249,798	844	1,097,475	1,283,860	5,169,731	952,585
1931	86	2,388,832	89	50,330	1,180	1,197,505	2,724,523	6,369,190	727,929
1932	86	1,185,444	264	178,000	1,257	2,384,806	701,659	4,449,409	586,440
1933	120	2,071,541	281	217,976	2,020	5,617,207	3,647,849	11,554,573	1,210,160
1934	155	8,327,410	14	386,254	1,531	5,965,028	6,413,992	21,092,684	1,092,612

PRODUCTION OF PUMPS, COMPRESSORS AND FANS

Year	Pumps		Hydraulic compressors		Gas compressors		Blowing machine (Fans)	
	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen
1925	95,464	6,810,845	—	—	3,241,005	—	91,948	—
1926	97,692	77,689,72	—	—	2,327,097	—	69,001	—
1927	94,100	7,863,534	—	—	1,407,917	—	35,508	—
1928	114,450	9,812,981	—	—	1,551,576	—	2,602	—
1929	170,258	8,608,986	756	439,835	1,244	1,535,262	12,004	838,693
1930	515,642	8,002,940	1,084	452,580	9,239	3,152,991	1,475	599,142
1931	398,632	6,837,801	686	358,938	2,230	1,627,198	13,266	748,891
1932	290,480	6,510,822	1,102	720,903	2,199	1,123,213	28,433	755,241
1933	290,477	9,669,019	833	610,502	1,969	1,721,220	4,152	1,143,718
1934	427,990	18,027,286	1,152	1,175,656	3,323	3,993,231	5,425	2,410,354

MACHINERY AND ENGINEERING

PRODUCTION OF METAL MANUFACTURING MACHINES
AND MACHINE TOOLS

Year	Metal manufacturing machines		Machine tools		Total
	No. produced	Value yen	Drills, cutters, etc. yen	Others yen	
1925	—	6,392,416	—	—	—
1926	—	7,045,657	—	—	—
1927	—	8,259,271	—	—	—
1928	—	7,671,887	—	—	—
1929	464,252	5,585,895	942,269	3,398,818	4,348,087
1930	32,787	4,436,549	1,167,163	3,179,858	4,347,021
1931	114,756	3,944,923	1,280,939	2,530,871	3,811,810
1932	33,654	8,198,267	879,924	3,081,695	3,961,619
1933	50,103	15,403,826	1,504,395	3,963,961	5,468,356
1934	33,863	23,460,057	3,430,479	6,321,597	9,752,076

PRODUCTION OF OPTICAL INSTRUMENTS

Year	Lenses, including prisms	Microscopes	Telescopes	Field-glasses	Glasses
	Value yen	Value yen	Value yen	Value yen	Value yen
1929	543,059	49,561	18,118	193,163	260,100
1930	402,739	94,172	16,470	2,955,885	317,550
1931	433,338	72,076	20,885	98,741	230,338
1932	572,961	54,750	182,302	227,325	360,114
1933	787,249	261,727	1,433,169	3,304,068	126,050
1934	954,515	328,834	2,160,119	5,539,078	62,400

PRODUCTION OF MEASURING AND WEIGHING INSTRUMENTS

Year	Rules	Measures	Scales	Gas meters	Water meters	Accessories and fittings	Total
	Value yen	Value yen	Value yen	Value yen	Value yen	Value yen	Value yen
1925	1,149,510	499,039	3,503,236	1,462,095	407,451	313,832	7,335,163
1926	806,309	363,948	4,782,282	397,738	612,435	198,755	7,161,466
1927	1,371,711	807,119	3,224,781	3,353,941	59,500	215,927	9,032,979
1928	1,150,781	714,147	3,210,425	1,791,125	844,280	372,705	8,083,963
1929	1,027,579	849,754	3,239,202	5,202,256	576,789	477,360	11,372,946
1930	794,776	298,269	3,033,458	2,998,262	1,379,397	411,724	8,915,886
1931	581,717	248,705	2,443,134	1,998,534	1,345,382	264,173	6,881,643
1932	705,516	175,568	2,228,220	1,870,250	1,485,165	466,348	6,931,071
1933	869,288	298,100	3,692,690	2,042,099	1,391,487	467,937	8,761,607
1934	1,019,479	228,432	3,848,631	2,064,405	1,141,105	508,076	8,810,126

PRODUCTION OF VARIOUS METERS

Year	Thermometers	Clinical thermometers	Electric meters	Others	Total
	No. produced	No. produced	No. produced	Value yen	Value yen
1925	—	—	—	3,369,214	4,408,903
1926	—	—	—	4,720,281	6,204,789
1927	—	—	—	4,785,048	5,854,994
1928	—	—	—	7,933,606	8,856,764
1929	732,099	912,172	184,181	2,128,677	6,240,404
1930	745,307	1,046,500	209,287	2,772,177	6,979,779
1931	676,743	1,237,192	213,011	2,657,049	6,811,607
1932	511,786	1,388,839	395,298	3,997,290	7,776,001
1933	750,742	1,518,544	439,268	7,312,489	13,279,122
1934	987,023	1,884,875	539,273	7,247,533	16,576,096

PRODUCTION OF MACHINES AND TOOLS

PRODUCTION OF CLOCKS AND WATCHES

Year	Electric clocks		Stand clocks		Clocks		Watches		Fittings etc.	Total
	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen	Value yen	Value yen
1925	—	—	577,622	1,790,758	559,736	2,897,435	28,003	202,482	7,509,031	7,399,706
1926	—	—	844,850	2,377,272	576,926	3,921,602	399,566	1,928,334	1,349,070	9,576,278
1927	—	—	1,079,542	2,535,241	590,464	2,921,621	104,771	976,043	2,445,318	8,873,413
1928	—	—	1,135,958	2,612,744	425,257	2,606,781	78,097	866,169	3,318,187	9,403,881
1929	6,870	303,946	1,232,269	2,664,390	506,504	2,176,758	238,236	1,365,932	2,555,567	9,066,593
1930	11,699	579,919	1,155,988	2,055,593	474,565	1,911,182	181,233	1,018,042	5,846,179	11,405,915
1931	11,250	366,148	993,287	1,350,822	362,011	1,890,718	169,358	657,528	2,310,248	6,075,464
1932	6,151	216,019	857,694	1,552,177	436,513	1,629,130	160,288	681,156	2,590,187	6,668,669
1933	7,654	240,388	1,270,467	2,047,417	514,626	2,122,065	153,247	794,183	3,160,690	8,364,743
1934	51,373	574,365	1,728,567	2,637,488	876,747	2,748,623	158,520	936,942	4,684,064	11,581,482

PRODUCTION OF CRANES, ELEVATORS, etc.

Year	Quantity	Cranes	Hoists, conveyors, etc.	Elevators	Value yen
		Value yen	Value yen	Quantity	
1925	—	3,199,333	—	5,055	—
1926	—	8,727,437	—	9,847	—
1927	—	4,369,902	—	2,325	—
1928	—	6,757,231	—	7,777	—
1929	2,538	4,052,380	4,157,486	502	1,408,330
1930	3,138	5,334,200	3,254,024	815	1,800,499
1931	396	1,828,835	2,174,962	519	1,502,950
1932	637	2,303,674	2,269,622	691	1,509,437
1933	1,278	5,402,508	4,607,460	614	1,238,638
1934	1,078	8,306,927	7,716,384	904	2,889,608

PRODUCTION OF VARIOUS MACHINERY FOR INDUSTRIAL PURPOSES

Year	Machinery for agriculture	Machinery for building and civil engineering work	Instruments for farming, etc.	Machinery for mining	Machinery for the spinning and textile industries	Machinery for the cement industry
	Value yen	Value yen	Value yen	Value yen	Value yen	Value yen
1925	5,633,775	—	1,839,846	2,547,304	19,360,226	1,373,985
1926	6,126,536	—	4,339,531	2,241,981	18,833,435	997,926
1927	6,491,882	—	4,436,543	3,335,031	21,344,424	1,461,975
1928	6,595,176	—	3,854,062	5,221,161	28,804,281	1,221,839
1929	4,418,756	1,278,047	4,181,265	3,557,658	50,058,863	2,774,032
1930	3,589,150	751,150	3,016,360	3,124,345	21,221,689	1,387,210
1931	2,914,996	981,111	2,459,796	2,047,128	22,756,086	709,668
1932	4,297,720	898,830	3,187,430	3,060,091	27,478,898	1,044,278
1933	4,756,029	1,559,468	5,023,786	6,190,028	44,151,201	4,351,629
1934	5,720,304	1,351,098	5,178,672	9,672,126	64,653,507	5,258,333

Year	Printing machinery	Machinery for saw-mills	Machinery for paper manufacturing	Machinery for various chemical industries	Machinery for food manufacturing	Printing type	Miscellaneous machinery
	Value yen	Value yen	Value yen	Value yen	Value yen	Value yen	Value yen
1925	2,588,480	2,680,409	1,621,282	940,658	4,567,018	656,773	1,657,896
1926	2,440,522	1,897,646	2,100,520	1,825,134	3,362,918	1,113,687	7,736,500
1927	4,018,304	1,842,597	1,672,688	1,617,056	3,895,474	1,435,545	3,327,681
1928	4,826,703	1,890,320	2,020,182	2,117,131	3,900,812	1,453,085	3,438,396
1929	7,076,059	1,625,210	1,409,687	3,875,862	4,930,476	2,681,617	4,319,305
1930	6,006,587	1,034,264	957,295	2,895,738	5,887,896	1,903,982	3,151,624
1931	5,320,524	1,419,285	695,861	2,638,421	3,443,043	2,462,696	3,696,522
1932	6,615,661	1,354,872	509,207	4,869,055	3,563,442	1,855,639	5,271,977
1933	6,902,743	1,976,330	1,642,611	14,341,447	5,495,501	2,085,210	6,788,473
1934	7,498,370	2,336,224	2,731,426	21,662,391	7,447,799	1,988,371	8,835,473

PRODUCTION OF MISCELLANEOUS INSTRUMENTS

Year	Safes yen	Gas utensils yen	Water-service apparatus yen	Valves, cocks, etc. yen	Fly wheels, gears, axles, etc. yen	Fittings and accessories other than those already given	Others yen
						yen	
1925	2,797,223	911,755	728,352	—	5,218,128	—	—
1926	2,981,931	1,078,575	589,726	—	10,626,359	—	—
1927	2,585,416	407,042	1,223,757	—	12,104,986	—	—
1928	2,181,932	880,300	2,274,056	—	10,628,650	—	—
1929	1,935,008	940,621	2,724,438	3,929,240	3,497,804	21,253,630	42,687,650
1930	1,025,262	317,309	1,478,908	2,227,996	6,565,132	20,002,974	32,278,969
1931	1,200,092	406,968	1,136,253	1,641,080	5,962,705	11,660,898	32,121,271
1932	1,264,764	723,906	2,019,744	2,369,581	7,714,205	29,484,929	48,954,102
1933	1,486,533	1,049,967	1,610,242	3,623,998	14,310,795	38,256,100	72,104,704
1934	1,588,840	970,178	1,899,536	7,155,687	14,622,842	46,770,100	89,809,874

PRODUCTION OF MUSICAL INSTRUMENTS, etc.

Year	Pianos yen	Organs yen	Violins, mandolins, etc.	Others yen	Total yen	Gramophones yen	Arms yen
			yen				
1925			3,638,169		3,638,169	1,543,473	20,561,419
1926			3,087,683		3,087,683	1,433,578	15,536,865
1927			4,507,583		4,507,583	888,073	10,000,494
1928			5,187,348		5,187,348	837,390	22,294,322
1929	2,254,873	1,048,930	166,123	1,554,083	5,024,018	1,939,877	18,646,292
1930	1,878,800	1,016,210	119,188	1,147,472	4,161,670	2,096,439	13,141,067
1931	2,078,406	1,199,649	77,464	910,694	4,268,213	2,811,850	13,443,620
1932	1,907,456	914,951	52,184	994,383	3,868,974	3,110,657	23,185,829
1933	2,325,781	961,622	96,027	1,421,028	4,804,458	4,657,102	32,217,061
1934	2,465,038	931,591	134,802	1,943,023	5,474,454	6,355,129	42,162,029

PRODUCTION OF SCIENTIFIC AND MEDICAL INSTRUMENTS
AND TESTING MACHINES, etc.

Year	Experimental and testing machines yen	Scientific instruments yen	Surgical, or orthopaedic instruments yen	Surveying and drawing instruments yen	Registers, typewriters, counting machines, etc.	Cameras, magic lanterns, movie cameras, etc.
					yen	yen
1925	209,436	751,900	1,090,725	296,430	—	301,940
1926	365,491	1,505,410	1,405,402	421,685	—	121,300
1927	569,452	798,785	1,827,135	299,541	—	1,113,697
1928	666,481	874,240	1,826,025	759,386	—	933,354
1929	736,400	7,175,891	2,295,556	904,369	1,529,458	769,608
1930	496,019	918,322	2,284,228	564,193	1,274,223	746,914
1931	481,864	476,407	1,902,771	427,924	1,888,942	1,126,327
1932	428,942	588,089	2,372,813	978,680	2,021,363	917,335
1933	1,414,604	871,644	4,572,566	778,229	2,157,272	1,085,272
1934	1,604,568	1,063,271	4,167,285	925,448	3,590,114	1,387,971

Electrical Machinery

Introduction The general economic prosperity increased the demand on electric power to a tremendous extent, which stimulated the construction of big thermal power houses, and extension and completion of power cables. An epoch-making improvement has also been effected in the construction of electric machinery which use high voltage, such as thermal electric dynamo, transformer, rotary converter, switch-board, frequency changer, induction voltage regulator, etc., many of which have an astonishing large capacity and produce a high revolution such as never have been imagined before. The same sort of development has been attained in electric machinery and instruments which use electricity of smaller power. The following are some of domestic electric machinery which deserve attention:

Description	Capacity
Water Wheel Dynamo	40,000 KVA
Thermal Dynamo	50,000 K.W.
Synchronous Advancer	30,000 KVA
Non-Synchronous Advancer	30,000 KVA
Frequency Changer	15,000 KVA
Rotary Converter	6,600 K.W.
Self-Cooling Transformer	22,000 KVA

Thermal Dynamo Domestic makes are now replacing the imported ones. To cite only a few examples of those recently manufactured: five units of 53,000 k.w. installed for Kwansai Kyodo Kwaryoku, one unit of 12,500 k.w. for Hokkaido Dento, one 30,000 k.w. unit for Yawata Seitetsusho, and one 35,000 k.w. unit for Toho Denryoku are notable ones.

Turbine (thermal) Owing to rapid increase in the number of thermal power houses, manufacturing of turbines is showing a great activity.

Mitsubishi and Ishikawajima received orders for a turbine of 53,000 k.w. from Kwansai Kyodo

Thermal El. Co., while the latter installed a 53,000 k.w. turbine for Tokyo Electric Light Co., Ltd. at their Tsurumi Plant. Hidachi Seisakusho accepted also an order from Yawata Iron Works of the Japan Iron Mfg. Co. for 30,000 k.w. turbine.

Hydraulic Dynamo Hydraulic dynamo manufacturing is controlled exclusively by domestic makers and is in its most prosperous stage, showing a great progress both in art and in volume of production as compared with its status of a few years ago. Three units of 40,000 KVA manufactured by Shibaura Seisakusho for Chosen Hydro-electric Co., one 52,000 k.w. unit manufactured by the same company for Yahagi Hydro-electric Co. one unit of 60,000 k.w. manufactured by Hidachi Seisakusho for Japan Electric Power Co., Ltd., are good examples. Since almost all the electric power companies are enthusiastic for building larger power houses, this manufacturing work promises a further development.

Direct Current Dynamo The demand for the direct current dynamo has increased rapidly for charging, experimenting, for steamers and wireless telegraphy. Dynamos of both large and small capacities are selling well. It deserves a special notice that small mills of various manufacturing concerns and cotton goods plants are installing dynamos of small capacity for lighting purpose.

Electric Motor The demand for electric motors has become very strong on account of activities in the industrial world, especially in spinning, munitions and cement industries. Kinds and types of motors manufactured vary to a great extent. One motor capable of producing 23,000 HP. which is considered as one of the largest in capacity in the world and a synchronous motor of 1,100 HP. have been manufactured by domestic makers. Special motors of high ef-

iciency which are required in cotton spinning mills, agricultural districts, etc. are successfully manufactured.

Water Wheel Manufacturers of water wheels have considerable difficulty due to the fact that different wheels must be made for high and low heads. For instance, Koguchigawa No. 3 power house of Nihonkai Hydro-electric Co., Ltd. has a head of 118 metres which is considered the highest head in Japan. On the other hand, the study on turbines, etc. for a power house built for the purpose of raising water is being made by companies like Chūō Electric Co., Ltd.

Transformer Great demand for electric power has naturally caused the increased manufacture of transformers, both large and small in size. Study has been made as to location and capacity of transformers and as the result transformers of various types and kinds are being manufactured. Some transformers with a capacity of 43,000 KVA or others with voltage regulators, etc. are manufactured successfully.

Converter or Phase Advancer Condenser converters of comparatively large capacity are being manufactured by large electric machinery makers. Recently, a rotary converter which generates 6,000 k.w. and 10,000 amperes, synchronous converters which produce 6,600 k.w. and mercury are rectifier which generates 2,000 k.w. have been manufactured. Some of the smaller converters use oil filled cables, and there are many kinds and types of the latter.

Cable and Wire The firm of Sumitomo has done much research work on the GP submarine cable, but now the subject of research has been shifted to the lead-covering. Not only three large firms, viz. Sumitomo, Furukawa, and Fujikura, but also Nihon Densen and the Tokyo Cable Manufacturing Company are also

undertaking the work, and such high-class cables and wires are produced in great quantities that the import of these articles has now become an old story. Among the manufacturers are included not only those big firms mentioned above, but also over a hundred of those which rank with Dainippon Densen or Taida Densen.

Electric Furnace The demand for electric furnaces has recently become very strong along with the development of the metal industry. Electric furnaces having capacities of as large as 1,500 KVA and 2,000 KVA are produced.

High Speed Oil Circuit Breaker Along with the increase of voltage, the increase of speed of breaking circuit becomes a resultant requirement. Both physical and chemical researches have been made and the perfection of making a breaker which cuts the circuit at an exceedingly high speed is amazing. As to its size, a circuit breaker, the capacity of which is as large as 2,000,000 kVA is manufactured.

Automatic Voltage Regulator The voltage regulator is now being installed independently or with a converter by power houses in various places, and these regulators are showing excellent results. Recently regulators have been freely installed with 22,000 volt and 150,000 volt pressures in power cables and proved their 100 per cent. efficiency in each case. They are of superior makes, and are being manufactured only by large makers.

Electrode The rise of electro-chemistry and the activities of electrolysis industry have brought about an amazing development in the electrode manufacturing industry. Electrodes of large size and of good quality are now produced in Japan and import of this article has become negligibly small. Principal makers are the Tokai Electrode Co., Ltd., and

the Nippon Carbon Co., Ltd., and companies other than these are merely making raw materials for the same.

Current Limiter In order to rationalize the charge for electric light and also to restrict the abuses of electricity an electric current limiter has been invented and it is actually used by the Osaka City Electric Bureau, the Hanshin Electric Railway Co., the Hanshin Express Electric Railway Co., Ltd., and other electric power supply companies. There are many kinds and types of current limiters, some of which are of very high quality.

Broadcasting Apparatus In any of Japanese broadcasting stations no broadcasting apparatus of domestic make was installed in the past. They were those manufactured by the Marconi Co., Ltd., the International Electric Company, G. E., etc. However, the situation has now been completely reversed, and apparatus of large capacity are being manufactured by the Nippon Denki Co., Ltd. and the Tokyo Denki Co., Ltd. The Nippon Denki manufactured 100 kilo one for the Hsinking Broadcasting Station in November, 1934.

Dry Cells This industry has made a great progress in these years, and its production now reaches ¥10,000,000 a year. The domestic products not only fulfill the total demand in the country, but they are also being exported to Manchoukuo, China, the South Sea Islands, etc. It was pre-

scribed as one of the principal industries of the country and is controlled as such. It is also now under consideration to include it as one of the principal export articles.

Electric Lamps Exports of Japanese electric lamps to countries other than Great Britain for 1935 totalled 205,859,837 and ¥7,727,921, according to the Japan Electric Lamp Export Guild. The total dropped about ¥220,000 from the year before. Figures follow:

	Quantity	Value
Europe	88,973,926	¥1,259,294
Asia	47,873,491	1,915,965
North America	89,763,647	3,020,618
South America	17,469,166	1,072,887
Africa	4,390,757	193,507
Oceania	7,143,504	249,914
Others	245,256	15,736
Total	205,859,837	7,727,921

Exports to Great Britain for one year ended last March 1936 were not satisfactory. The export amount was only 29.5 per cent. of the amount involved in the Anglo-Japanese agreement. Actual exports follow:

Kind	Quantity	Value
Household use	622,797	¥95,898
Large lamps	357,765	30,767
Automobile use	909,998	48,505
Baby lamps	6,608,300	134,401
Fancy-shaped lamps	520,554	20,327
Christmas sets	357,452	427,888

Production Production of electric machinery and instruments in Japan in recent years are as follows:

PRODUCTION OF ELECTRICAL MACHINERY

Year	Dynamoes		Electric motors		Rotary converters		Frequency changers	
	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen
1925				44,398				29,142,595
1926				51,080				23,551,235
1927				61,131				21,299,433
1928				65,900				20,421,577
1929	13,949	7,913,875	77,039	16,032,609	6,510	1,714,285	9	52,151
1930	10,914	4,415,105	115,420	14,795,641	136	1,578,456	8	109,278
1931	8,953	4,865,869	88,083	10,369,400	1,161	1,082,559	6	22,251
1932	9,748	4,638,302	99,809	9,886,162	1,451	599,177	11	12,184
1933	58,600	7,720,547	195,005	21,553,794	1,269	1,470,000	3	14,006
1934	25,378	11,243,515	387,750	34,750,828	703	1,358,357	2	6,280

Year	Transformers		Rectifiers		Electric fans		Electric utensils		Insulated wires	Cables
	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen	No. produced	Value yen		
1925									49,025,679	
1926									78,025,372	
1927									77,611,760	
1928									92,808,367	
1929	329,388	12,330,728	2,393	189,520	79,834	1,719,114	255,848	1,904,604	36,651,108	21,315,001
1930	387,333	9,307,652	3,628	160,218	88,047	1,855,294	218,797	989,583	27,184,916	18,051,758
1931	341,561	5,883,660	275	315,327	44,019	761,588	535,869	1,130,569	21,441,985	10,421,985
1932	290,887	6,618,334	2,881	156,547	35,228	610,008	542,766	1,311,409	26,329,442	10,189,503
1933	324,167	9,976,642	1,097	278,657	46,041	866,070	733,819	1,415,757	39,487,609	17,850,301
1934	416,970	15,400,423	3,640	238,892	67,234	1,188,010	985,948	2,124,990	42,929,887	16,185,545

PRODUCTION OF ELECTRICAL INSTRUMENTS

Year	Instruments for wireless communication	Instruments for telegraphic & telephonic comm'n	Storage batteries		Electric batteries		Total	Other electrical instruments
			No. produced	Value yen	No. produced	Value yen		
1925								
1926								
1927								
1928								
1929	4,714,704	9,111,019	798,456	6,480,389	25,881,277	5,940,331	12,420,720	89,624,228
1930	6,357,315	9,109,054	205,753	4,144,403	70,576,043	9,658,359	13,802,762	29,294,850
1931	9,582,428	6,284,448	206,278	3,337,901	23,552,092	4,242,700	7,580,601	21,929,303
1932	11,552,221	7,034,435	281,980	3,425,373	33,032,783	5,172,392	8,597,765	24,167,329
1933	19,298,426	7,696,588	358,871	4,819,752	41,729,522	6,636,878	11,456,636	39,175,923
1934	26,420,734	13,143,143	104,111	6,575,986	51,425,306	7,268,713	13,844,699	60,722,078

PRODUCTION OF ELECTRIC BULBS, SEARCH LIGHTS, etc.

Year	Electric bulbs		Search-lights		Others	Total
	No. produced	Value yen	No. produced	Value yen		
1925	57,063,338	17,089,352	—	—	—	—
1926	63,680,842	15,225,423	—	—	—	—
1927	87,254,705	26,315,412	—	—	—	—
1928	97,549,985	24,327,175	—	—	—	—
1929	184,183,114	17,763,744	10,344	2,464,676	2,507,385	22,736,805
1930	114,811,775	15,192,305	20,752	2,400,744	3,539,177	21,182,225
1931	202,054,444	18,038,888	—	968,606	3,459,829	22,467,323
1932	286,653,068	19,685,838	169	831,379	4,692,485	25,209,302
1933	340,392,875	21,970,879	174	679,973	6,942,939	29,593,791
1934	310,750,142	19,997,704	154	893,804	7,115,004	28,006,512

Locomotives and Rolling Stock

Of all the mechanical industries, few compare with that of the manufacture of locomotives and rolling stock in largeness of amount of production and value. Nearly 90,000 locomotives, passenger cars, freight cars, electric cars, etc., are owned

by the Department of Railways of the Imperial Government, and most of them were manufactured in the Department's works in Omiya, Oi, Hamamatsu-cho in Tokyo, Takatori in Kobé, Kokura, etc. In addition they are manufactured by a few private companies.

When the first railway was con-

structed, in 1872, between Tokyo and Yokohama, locomotives were imported from Great Britain, so in the beginning nearly all the locomotives were of English-make, but later they were replaced by locomotives imported from America.

The first locomotive to be manufactured in Japan was turned out by a Kobé mill, now belonging to the Department of Railways, in 1893, and the Kisha Seizo Kaisha turned out its first in 1896. Later, in 1910, the Hyogo mill of the Kawasaki Shipbuilding Co., Ltd., started manufacturing locomotives on a large scale, and about the same time the Department of Railways also began to do the same. From that time locomotive manufacturing developed at a great pace and since 1912 their importation has practically ceased. During the World War, the Nippon Sharyo Kaisha, Ltd., and the Kasado mill of the Hitachi Seisakusho were established, and in 1924, the Mitsubishi Shipbuilding Co., Ltd. entered the industry, and at present Japanese works are not only filling home requirements but are exporting to Korea, Formosa, Manchoukiuo and China.

The manufacture of passenger cars has also advanced, four and six wheel bogie-cars being made. The highest speed of passenger trains has been increased to 64 m.p.h. and as the Japanese gauge is a narrow one of 3' 6" it has been necessary to make intensive studies to reduce rolling. As the result of the studies, new devices have been applied and good results achieved.

Electric locomotives were imported from Germany in 1912, and since then, with the exception of 14 locomotives which were manufactured at the Omiya Works of the Department of Railways, only imported ones have been used.

Situation in 1934 Through the pop-

ularity of cars and locomotives of so-called "streamline form" and the attempt to make higher-grade cars, locomotive and rolling stock manufacturing is showing a great activity, especially in the works which have orders from Manchoukiuo. Making of higher grade cars has a direct bearing upon makers of parts and trucks. On account of increased demand for Diesel and gasoline locomotives, the demand for small-sized steam locomotives has somewhat slackened. But on the other hand, the demand for trucks for electric tramway, etc. has increased.

Steam Locomotive Owing to electrification of private railways and the advance made by gasoline cars, it is now very seldom that private railway companies use steam locomotives. Accordingly makers have now hardly any orders coming to them except from the Department of Railways. Only a few makers are manufacturing small-sized locomotives for mining and public works. Even these are now being driven out by small-sized gasoline or Diesel locomotives. Some makers have, therefore, totally given up the manufacture of steam locomotives and are employing their efforts for the manufacture of locomotives using Diesel engines.

Electric Locomotive On account of the increased electrification of railways, new ideas are constantly put into the improvement of electric locomotives. Important points in improvement are the application of electric arc welding method and lightening of weight. In future, the centre of gravity of locomotives will be lowered and the "streamline form" will be adopted in order to increase the speed. New improvements such as equipments for sprinkling sands to prevent racing, or those to recover lost electric power, will perhaps be made in near future.

Rolling Stock Orders coming from private railway companies on rolling stock are very small, being limited to a few gasoline or ordinary passenger cars. However, makers are well satisfied with orders coming from electric tramway companies, and especially with orders coming from Manchoukuo.

Electric Car Electric cars are divided into those having motors on them and other ordinary cars, which are again subdivided into passenger, freight and emergency cars. Private railway companies want to keep pace with further electrification of the government railways, and intend to electrify their lines and increased distribution of cars and replacement of old cars with new ones will in-

evitably increase the demand, and the prospect of this industry can be said to be very bright.

Aerial Cable As the safety of aerial cable has come to be recognized, the fever for its construction has become very intense. For the carriage of goods, various mining and cement companies are now changing means of transportation from ground railways into aerial cables, which is making this industry very active. This activity is being further stimulated by construction of aerial cables in Manchoukuo.

Various Appliances Controller, brake, brake shoe, pointer, separator, etc. are successfully manufactured and mills are active to a greater or less degree.

PRODUCTION OF LOCOMOTIVES AND ROLLING STOCK

Year	Steam locomotives produced		Electric locomotives produced		Gas locomotives produced		Fittings, etc.	Total
	No.	Value yen	No.	Value yen	No.	Value yen		
1925	218			10,294,412			—	10,294,412
1926	231			13,453,316			—	13,453,316
1927	257			13,091,554			—	13,091,554
1928	287			18,893,325			—	18,893,325
1929	229	13,629,665	36	1,285,567	78	484,280	2,631,372	18,030,884
1930	233	9,400,067	41	884,035	129	1,192,624	270,255	11,748,481
1931	109	5,029,536	47	1,506,247	163	1,454,003	216,223	8,206,009
1932	60	2,976,606	47	503,464	223	1,333,485	298,250	5,111,805
1933	167	6,270,177	29	609,386	288	1,486,822	1,340,408	9,706,793
1934	192	12,485,274	71	2,392,319	236	824,323	1,091,565	16,793,481

Year	Coaches and freight cars		Fittings for coaches and freight cars	Electric cars		Rikisha		Waggons
	No. produced	Value yen		No. produced	Value yen	No. produced	Value yen	
1925	4,556	12,349,533	—	643	6,186,726	—	1,536	153,510
1926	3,936	12,122,955	—	828	7,418,375	—	1,277	85,900
1927	3,558	12,769,427	—	582	5,236,179	—	363	46,775
1928	5,597	16,873,994	—	845	7,564,572	—	950	92,100
1929	3,996	14,532,052	919,049	535	5,882,521	1,618,233	1,668	107,750
1930	3,831	9,306,425	1,582,700	355	3,607,416	3,672,732	947	75,610
1931	1,508	3,881,066	221,088	180	2,019,861	1,492,455	1,448	72,060
1932	1,106	3,980,322	181,345	178	1,259,789	213,153	489	50,400
1933	1,452	8,064,776	853,179	129	1,663,722	501,857	550	58,220
1934	2,640	15,070,988	2,703,357	189	1,530,634	285,731	848	64,561

Aircraft

Introduction Captain Tokugawa was the first pilot to fly a heavier than air machine in Japan. This was in 1910. The manufacture of aircraft was commenced in the Army and Navy arsenals and, furthermore, many arms of the service from private companies. The manufacture of aeroplanes was greatly encouraged in this way and military and naval aircraft can now be satisfactorily manufactured at home.

History Dr. Ichita Kishi, a physician, constructed at his own expense various workshops in his own residence at Tsukiji, Tokyo, and, in 1914, with the help of several expert engineers, succeeded in constructing an aeroplane engine, the first to be manufactured in this country. A trial flight of the aeroplane using this engine was very successful, so he manufactured his second aeroplane in 1916. In 1917 Mr. Nakajima, who was an engineer captain in the Navy, manufactured various kinds of aeroplanes with the help of Messrs. Mohei Ishikawa and Seibei Kawanishi. In 1920, the Aichi Tokei Denki Kaisha, Ltd. (Aichi Clock Electric Machinery Co., Ltd.) established an aeroplane department

and in 1920 turned out a seaplane. From that time this department has developed rapidly. In 1921, the Kawanishi Machine Company established an aeroplane factory in Hyogo and started the manufacture of seaplanes in 1923. Also, in 1921, the Mitsubishi Aircraft Co., Ltd., had nine experts in aeroplane manufacturing called from Great Britain and began to manufacture both aeroplanes and engines on a large scale. The Kawasaki Shipbuilding Co., Ltd., following in the steps of the Mitsubishi Aircraft Co., Ltd., began manufacturing aeroplanes in 1922.

Present State of the Industry Aircraft manufacturing industry showed considerable activity in 1934. Aside from requirements of the military circle, manufacturers received good orders from the public owing to the fact that many contributions of aircrafts were made to the army and navy by different bodies of people. As regards manufacturing of light aeroplanes for transportation purpose, one manufactured by the Tokyo Gas & Electric Co., Ltd. towards the latter part of the year proved a great success. Other aircraft manufacturers received orders on aircrafts of the same type. Manufacturers of aircrafts at present are as follows:

MANUFACTURERS OF AIRCRAFTS

Year	Makers of Bodies	Makers of Motors	Makers of Balloons and Airships		Total
1925	6	3	2		11
1926	6	3	2		11
1927	6	4	2		12
1928	6	4	3		13
1929	6	4	3		13
1930	6	4	3		13
1931	7	4	2		13
1932	7	5	2		14
1933	8	5	2		15
1934	7	5	2		14

Automobile Manufacturing

History The first automobile to be manufactured in Japan was by the

Tokyo Motor Car Works, under the management of Mr. S. Yoshida, in the year 1909, but since then progress has been very slow. In 1910,

several military motor cars were manufactured for the Army in the Osaka Arsenal, and in 1911, the Tokyo Automobile Factory commenced the manufacture of "DAT" cars.

The Tokyo Gas and Electric Co., Ltd., began to manufacture military automobiles "T. G. E." in 1916, and trucks in 1917. In 1918, the Military Automobile Subsidy Act was put into force and this company was the first to get a subsidy from the Army Department under the act. Then the Tokyo Ishikawajima Shipbuilding Co., Ltd., began to manufacture passenger cars in 1920. Companies other than the above which are making automobiles are Hakuyo-sha, Ltd., and the Orient Automobile Co.

Present State of the Industry Motor car industry is perhaps the only one in all the heavy industries in Japan which the country has not anything to feel proud of to-day. While there are more than 135,000 cars, buses and trucks of all kinds which are running throughout the country, almost all of them are imported, about 80 per cent. of which being Chevrolet of the General Motors Co. and Ford. The balance of 20 per cent. consists of those of Chrysler line and a small number of European makes. However, inasmuch as the motor car industry is entirely undeveloped in Japan yet, it can be said that there is a great future for Japan's automobile manufacturing industry.

Passenger Car There are no passenger cars manufactured in Japan which are worthy of mention, except "Atsuta-go" which are modeled after Nash and White and aside from the small model cars of "Datsun" there are no other domestic cars.

Bus and Truck Bus and truck manufacturing by domestic works is slightly better than passenger car making. Each "Chiyoda" manufactured by the Tokyo Gas and Electric Co. and "Sumida" made by the

Jidosha Kogyo Kaisha has a long history. The companies are also jointly making "Isuzu" designed by the Department of Commerce and Industry. These three classes of buses and trucks are supplied to the market in considerable numbers. Kyodo Koku-sai Jidosha which was established in 1933 by these two companies is selling domestic trucks and buses of five classes. Aside from this, the Mitsubishi Heavy Industry Co., Ltd. is making large-sized bus "Fuso-go" at its Kobe plant, the Kawasaki Sharyo Kaisha, Ltd. truck and bus "Rokko," and Tokyo Association of Dealers of Motor Cars is planning to make another kind for trial.

Miniature Motor Car and Motor Cycle The so-called miniature motor cars are those the dimensions and power of which are limited by the "Regulations of Motor Cars" and include such small-sized cars as "Datsun" car, rear cars, etc. Rear cars have made a marvelous development in Japan as a means of carrying small parcels. Their production totalled 15,000 a year, and they are not only in use throughout Japan but are exported to Manchoukuo, the South Sea Islands, etc. Its manufacturing is showing activity due to low exchange rate and increased demand. The sales of small-sized cars like "Datsun", too, are rapidly increasing in number in late years.

Automobile Industry Law When it is enforced, the Automobile Business Law which was passed by the 69th extraordinary session of the Imperial Diet will not interfere with the activities of foreign companies here as long as they do not expand their operations beyond the scale on August 9, 1935, when the Government announced its intention of putting the law into effect. The purpose of the act, therefore, is to retain the automobile industry Japan now has but to make sure that all natural

growth will be cared for by Japanese-owned and controlled companies. So far no announcement has been made regarding the promulgation of the law. Its provisions are summarized below:

1. Automobile assembling and manufacturing of principal parts shall be permitted on license, but no license is necessary for an enterprise which is unable to manufacture more than a number of cars to be fixed later (set at about 5,000 or 6,000 cars a year).

2. Companies able to obtain licenses shall be joint-stock companies which have majority of shares of rights vested in Japanese subject or Japanese juridical persons.

3. Companies which obtain licenses shall be exempted from income taxes and business profits taxes for their first five years of existence.

4. When such a company imports apparatus, machines and materials necessary for the industry and obtains Government permission, it shall be exempted from import duties.

5. Such a company may float debentures to a total in excess of the maximum set in the Commercial Code.

6. When the Government recognizes that imports of automobiles or parts threaten to menace the consolidation of the automobile manufacturing industry in Japan, it may restrict such imports or impose a maximum tariff rate of 50 per cent.

7. The Government is authorized to issue instructions to licensed companies concerning supervision and military affairs.

8. Any company which commenced automobile manufacturing before August 9, 1935, when the Government announced its new policy, may continue to do so on the scale of its operations on or before that date.

There were about 130,000 automobiles in Japan at the end of last

year. Most of the 26,000-to-30,000 cars supplied to this market annually are built by Ford and General Motors. According to the provisions of the new law, they may continue to operate as in the past, without obtaining licenses, but may not expand beyond the scale of August 9 last. As new demand arises in the future, Japanese concerns will supply it.

The Japanese Governments hopes to increase the number of cars in the country to 300,000 in the next 10 years. The number per 10,000 population is now 16 in Japan, 1,895 in the United States, 451 in France, 385 in Great Britain, 135 in Germany, 83 in Italy and 849 in Australia.

Nissan-General Motors Co-operation Failed Negotiations involving the merger of General Motors of Japan, Ltd., and the Nissan Automobile Company has been dropped indefinitely, due to inability to reach an agreement. Following the visit to Japan last year of a director from the General Motors head office, Mr. Yoshisuke Aikawa, president of Nissan Automobile, sent one of his directors, Mr. Genshichi Asahara, to New York to negotiate directly for the merger.

Divergence of opinions between General Motors and Nissan Automobile on personnel of the merged company wrecked the negotiations.

General Motors, capitalized at ¥8,000,000, fully paid up, and Nissan Automobile, capitalized at ¥10,000,000, fully paid up have agreed to offer their respective factories in Osaka and Yokohama to the new company as investment in property. The capitalization of the new company is to be held 51 per cent. by Nissan and 49 per cent. by General Motors. The reassembling plant of General Motors in Osaka would be moved to Nissan's Koyasu factory, Yokohama. These questions have been

perfectly agreed upon between the two sides.

General Motors wishes to acquire the actual direction of the new company by installing its own men in important positions. The American company's stand is, due to doubt whether the auto bill will be adopted by this Diet.

Nissan Automobile has not yet abandoned hope for the merger and is expected to resume negotiations. If the transaction falls through, Nissan Automobile intends to build a re-assembling factory of its own in the compound of its Koyasu factory to make cars similar to Ford or Chevrolet. The yearly production is esti-

ated at about 5,000. Nissan Automobile will continue building its small Datsun cars as at present.

Accessories and Parts Accessories and parts of motor cars in Japan were almost exclusively of American makes before replacement of the embargo on gold in 1931. Owing to low exchange rate which followed thereafter import became very difficult and domestic makes came to the front. At present, even parts of Chevrolet or Ford are being replaced by domestic makes. They are now also exported abroad. Countless parts and accessories are made in domestic works, and the quality of these makes is rapidly improving.

PRODUCTION OF AUTOMOBILES AND MOTOR CYCLES

Year	Imported parts assembled		Others		Accessories and parts Value in yen	Total Value in yen	Motor cycles	
	No.	Value in yen	No.	Value in yen			No.	Value in yen
1925				4,092				7,436,433
1926				32,065				18,024,309
1927				10,780				25,356,332
1928				23,347				49,049,420
1929	11,221	12,484,051	18,058	71,177,209	6,219,850	89,884,750	204	112,925
1930	20,596	34,903,822	1,254	3,626,252	4,493,958	43,024,032	793	413,808
1931	19,985	32,099,506	971	2,576,231	6,535,494	41,211,231	1,451	820,320
1932	13,833	28,969,297	710	4,748,608	6,095,902	39,703,897	2,113	1,619,279
1933	14,373	37,690,059	1,637	9,493,251	10,960,059	58,143,369	4,613	3,951,570
1934	29,889	75,935,529	2,779	15,671,197	22,736,076	114,362,802	7,759	6,029,283

Import of Automobiles Due to the backwardness of the automobile industry in Japan, the country has largely relied on the import for their supply in the past. In 1914 the import barely amounted to ¥500,000, but this rapidly increased and in 1929,

it amounted to ¥30,000,000. Owing to depression it dropped to ¥20,000,000 in 1930, and to ¥14,000,000 in 1933, which was the bottom. The figure took an upward course again and rose to ¥32,813,000 in 1934, and ¥32,589,000 in 1935.

IMPORTS OF AUTOMOBILES & ACCESSORIES

Year	Number of automobiles	Value yen	Value of accessories yen	Total value yen
1925	1,762	4,630,000	7,062,433	11,692,442
1926	2,362	5,324,535	10,397,666	15,722,201
1927	3,895	8,063,063	10,218,909	18,281,972
1928	7,573	13,770,655	18,474,167	32,244,822

Year	Number of automobiles	Value yen	Value of accessories yen	Total value yen
1929	5,018	9,545,870	24,062,513	33,608,383
1930	2,591	4,896,992	15,178,000	20,075,000
1931	1,887	3,378,000	12,951,000	16,329,000
1932	997	2,894,000	11,927,000	14,821,000
1933	491	1,964,392	12,517,753	14,382,145
1934	896	3,357,061	29,456,076	32,813,137
1935	—	3,292,000	29,386,000	32,678,000

Bicycle Manufacturing

History A bicycle was first introduced into Japan in 1881 by an Englishman. In 1889, an American brought a bicycle with him from America. In 1904, frames and other accessories were imported from Great Britain, and the making of bicycles at a lower cost became comparatively easy. In 1906, accessories were imported from the U. S. A. and this time, bicycles became very popular.

Before 1913, accessories other than saddles, rims, and chains were being manufactured at home. Factories capable of manufacturing these latter articles on a large scale did not exist and it was impossible for small scale producers to compete against foreign products. From 1913 on, however, the demand for bicycles increased at great speed, and as the manufacturing of each of the above parts on a large scale became possible, bicycles came to be produced at a very low cost, though until the World War, those manufactured in Japan could not compete with European-made ones. During the War, the art of manufacturing advanced so much that domestic bicycles could well compete in both quality and price with imported ones, and not only were home demands satisfied, but the Japanese product was exported to China, Russia, India and other countries.

Bicycle in 1934. Bicycles which are used in Japan number 7,000,000, which means that every nine per-

sons own one bicycle. This fairly compares with Holland where the ratio is one bicycle to every seven persons. Moreover, the quality of bicycles made in Japan is so good that no country in the world can compete with her in this respect. To-day export of bicycles and accessories amounts to ¥25,000,000 a year, and bicycles made in Japan can be seen in every country except in Soviet Russia. The industry is now carried out in a perfect division of labour, and manufacturers number 800, who are located in Tokyo, Osaka, Nagoya, Kobe, etc.

Conditions Suitable for Bicycles Conditions in this country are well suited to the use of this vehicle. The factors which have made for the increased demand are:

(1) Individual wealth is comparatively small and the use of automobiles has not yet become universal.

(2) Roads are mostly too narrow, though greatly improved of late, to take automobiles.

(3) The making of bicycles, especially accessories like rims, is purely artisans' work, and is a type of work in which the Japanese people excel.

PRODUCTION OF BICYCLES IN JAPAN

Year	No. produced	Value yen	Value of accessories produced yen
1925	38,229	864,796	—
1926	41,832	1,112,621	—
1927	89,629	3,093,083	—
1928	125,538	3,323,999	—
1929	90,285	2,593,051	16,138,063
1930	136,985	2,790,331	12,206,374

Year	No. produced	Value	Value of accessories produced
1931	105,088	2,022,013	13,747,285
1932	63,988	1,315,748	20,666,605
1933	118,405	2,164,804	26,396,495
1934	152,920	2,542,376	34,462,225

These figures do not include production in factories employing less than 5 persons.

The principal places of production are Tokyo, Osaka, Aichi, Hyogo, and Ishikawa prefectures. Production in each of these prefectures in recent years is as follows:

Prefectures	1932	1933	1934
	yen	yen	yen
Tokyo	7,927,974	9,818,150	10,805,467
Osaka	6,830,222	10,567,187	13,152,556
Aichi	2,838,530	3,663,442	5,895,292
Hyogo	2,325,811	2,386,329	3,110,473
Ishikawa	580,133	661,228	2,151,845

Imports and exports of cycles and accessories since 1923 are as follows:

Year	Imports	Exports
	yen	yen
1925	6,216,000	2,295,000
1926	5,923,000	1,959,000
1927	3,527,000	1,879,000
1928	1,634,000	2,557,000
1929	1,280,000	3,429,000
1930	1,563,000	5,274,000
1931	1,153,000	7,119,000
1932	795,000	6,028,000
1933	619,000	12,114,000
1934	73,308	18,904,257
1935	407,000	17,436,000

Tyres are not included.

Imports of Machinery

Import of machinery in 1934 totalled ¥143,590,180, which showed a gain over that of 1933 which was ¥106,574,614. This was due to lower exchange rate and increase of imports of some special machinery on

IMPORTS OF MACHINERY (unit ¥1,000)

Articles	1928	1929	1930	1931	1932	1933	1934
	yen	yen	yen	yen	yen	yen	yen
Watches and parts thereof	7,900	6,369	4,388	2,161	2,853	2,094	2,684
Clocks and parts thereof	627	616	434	205	140	147	112
Microscopes, etc.	342	456	324	166	255	126	230

which the demand was strong on account of the general industrial activity in the country. However, this figure was smaller than the 1929 figure of ¥186,832,556. The import as a whole has a declining tendency. This is perhaps due to the following reasons:

(1) The machine manufacturing industry has made a great progress, and,

(2) The depression has reduced the demand for machinery.

The rapid development of industries of many kinds which has taken place since the Restoration has created a great demand for machinery, but as it takes a long time to train experts and workers to produce machines of superior grade, Japan has had, in the past, to import most of her machinery. Now, with careful study and training on the part of her engineers, it has become possible to turn out machines which are not inferior to any imported ones, and Japan can now buy these at comparatively low prices. The depression which started in 1920 has become very acute in late years, and has brought about a great falling off in the demand for machinery. These two reasons account for the falling off in imports.

Imports of machinery by Japan, excluding automobiles and their accessories, from 1919 to 1928, was somewhere between ¥100,000,000 and ¥140,000,000. There was a sharp reduction in 1930, and in 1931 it reached the bottom. The latest two years are gaining again. (See Chapter XI.)

Articles	1928	1929	1930	1931	1932	1933	1934
	yen	yen	yen	yen	yen	yen	yen
Ammeters, voltmeters, etc.	280	328	215	141	101	78	64
Wattmeters	693	907	367	401	211	99	63
Other meters	1,957	2,063	1,465	1,030	1,074	1,526	1,479
Electric batteries, and parts thereof	354	422	259	176	176	106	134
Surgical or orthopaedic instruments	403	484	388	277	311	156	200
Surveying and drawing instruments	667	449	349	422	363	812	97
Registers, calculating machines, typewriters, etc.	1,850	1,924	794	738	590	574	1,020
Scientific instruments	2,524	2,998	2,429	1,017	1,039	1,049	1,003
Cameras, and parts thereof	1,013	1,088	1,423	1,419	966	765	1,419
Gramophones, etc.	376	591	268	240	98	38	41
Musical instruments	929	940	576	375	296	185	183
Telegraphic and telephonic instruments	3,982	3,871	1,882	1,223	1,664	2,989	1,468
Other scientific instruments	—	—	—	—	1,681	2,140	1,255
Fire-arms	2,408	1,967	837	777	5,826	6,451	1,031
Railway carriages, etc.	2,091	1,420	234	132	74	47	66
Boilers	3,349	2,376	3,124	2,237	1,192	1,790	4,091
Locomotives, etc.	905	1,062	544	59	70	156	6
Steam turbines	244	825	1,024	695	182	58	430
Internal combustion engines (weighing not more than 250 kg.)	5,526	7,354	4,460	4,206	2,296	1,826	3,253
Internal combustion engines (weighing not more than 2,500 kg.)	5,108	5,224	3,897	5,486	9,507	13,954	17,277
Internal combustion engines (others)	2,207	5,535	6,119	1,237	667	366	248
Water-turbines and Pelton wheels	559	1,095	36	—	9	—	150
Dynamos, motors, etc. (weighing not more than 100 kg.)	1,813	1,926	1,491	1,126	1,405	1,372	829
Dynamos, motors, etc. (weighing not more than 5,000 kg.)	2,889	1,599	664	285	233	192	146
Dynamos, motors, etc. (others)	2,213	3,306	1,382	587	4	166	248
Transformers	1,015	653	354	162	111	64	85
Dynamos combined with motive machinery	349	1,325	1,199	161	47	112	2
Cranes	379	479	300	284	4	58	13
Capstans and other winding machines	584	1,347	1,215	142	34	117	35
Gas compressors	1,979	2,539	2,024	642	809	669	1,742
Sewing machines and accessories	5,404	9,501	4,066	2,924	3,265	2,183	5,866
Pumps	1,241	1,883	2,017	740	370	726	1,000
Blowing machines	565	1,464	1,436	541	161	145	232
Hydraulic presses	329	133	227	106	6	4	54
Pneumatic tools and machines	1,030	981	453	264	276	256	639
Metal or wood-working machines	4,380	5,622	4,849	3,069	5,8071	16,246	21,433
Spinning machines	10,431	14,486	6,365	3,515	7,998	3,520	6,395
Weaving looms	427	687	279	55	106	12	40
Tissue-finishing machines	292	411	375	161	342	116	62
Knitting machines	178	222	814	145	75	82	1,773
Paper-making machines	379	346	127	38	37	9	—
Printing machines	1,577	1,631	690	195	291	20	225
All other machinery	19,190	24,486	20,767	11,908	12,463	11,440	11,510

Exports of Machinery

In 1934 Japan witnessed the highest record in the export of machinery of her own making. The volume of export was ¥124,982,223 which was about double of the preceding year's export of ¥67,622,067. In addition to this the export of tools

and other metal manufactures was ¥59,054,665 as against the 1933 figure of ¥42,604,224. The future of Japan's machinery manufacturing depends upon the degree to which her export of machinery expands, and especially upon the development of Manchoukuo market. The invasion of Japanese products into the

Dutch East Indian, Indian and other foreign markets is a matter for future prospects. The export of Japan-made spinning and weaving machines is very promising. Especially the Toyoda Automatic Weaving Machines are very much demanded abroad, where the spinning industry prospers. These machines used to be exported to China, mostly Shanghai, to be used by Japanese spinning mills in Shanghai. Last year 25

machines each equipped with 400 spindles were sent to Ahmedabad spinners in India. Diesel-engines to be fitted with fishing ships are built in Japan and shipped to the Dutch East Indies. A British firm purchased the Toyoda patent for ¥1,000,000, but when the machines were installed in England, a vigorous protest was raised by British mill hands. Japan-made machines exported during the last three years follow:

	1932	1933	1934
	(In ¥1,000)		
Spinning and weaving machines	3,650	4,878	8,378
Electric machines	1,414	2,724	10,055
Printing machines	371	900	1,128
Pumps	344	909	1,572
Boilers	343	577	2,652
Metal and wooden machines	216	566	1,189
Others and total	34,510	67,622	124,982
Destination			
Manchoukuo	394	1,938	5,214
Kwantung Leased Territory	3,953	14,197	65,287
China	3,848	4,951	16,623
Hongkong	107	119	693
British India	900	2,104	8,069
Dutch East Indies	123	312	10,500
Soviet Union	1,179	1,328	2,016
Brazil	73	104	369
Australia	41	31	676

Factories and Operatives

Factories in which various kinds of machinery were manufactured were, in 1934, including Government

and public plants, 9,589; workers and operatives numbered 465,745. These figures include persons engaged in the shipbuilding industries. Details follow:

Kind of Machinery	No. of mills	Total No. of employees	Male	Officials Female	Total
Boilers	74	2,143	228	9	237
Appliances for gas production	4	263	50	2	52
Motors	475	12,031	1,280	84	1,364
Steam engines and turbines	6	84	8	1	9
Internal combustion engines	459	11,395	1,173	69	1,242
Water wheels	10	552	99	14	113
Electrical machinery and instruments	514	39,823	4,204	245	4,449
Cables and insulated wires	92	7,808	1,032	85	1,117
Telegraphic and telephone instruments	175	10,292	1,911	275	2,189
Electric batteries	48	4,627	570	32	602
Agricultural implements	305	4,217	386	11	397
Machinery for building and public works, etc.	79	1,543	150	10	160
" " mining	70	2,952	357	14	371
Spinning and textile machinery	782	29,830	2,105	175	2,280
Manufacturing machinery and instruments	622	15,519	1,287	62	1,349

Kind of Machinery	No. of mills	Total No. of employees	Male	Officials Female	Total
Machinery for cement industry	42	987	72	3	75
" " paper making	33	1,034	140	2	142
Machinery for chemical industry	130	5,250	640	36	676
" " foodstuff industry	154	2,749	392	25	417
Printing machinery	291	3,868	453	27	480
Other machinery and instruments	265	3,180	240	11	251
Elevators	11	568	145	20	165
Cranes	59	2,864	316	7	323
Pumps	126	2,705	374	29	403
Hydraulic press, air compressors, etc.	52	1,391	186	12	198
Rules, measures, scales, gauges, etc.	157	3,904	484	21	505
Meters, etc.	92	5,899	923	59	982
Clocks, watches, etc.	97	7,055	298	21	319
Testing machines, scientific instruments.	44	1,529	214	11	225
Surgical instruments	114	1,879	126	6	131
Surveying and drawing instruments	26	350	56	—	56
Calculating machines, registers, typewriters, etc.	27	1,172	142	11	153
Cameras, projectors, kinetoscopes	33	1,535	136	2	138
Electric bulbs, etc.	372	12,288	1,163	120	1,283
Optical instruments	73	4,336	769	63	837
Glasses	5	68	11	1	12
Musical instruments	34	3,224	231	4	235
Gramophones	10	331	24	—	24
Arms	96	11,890	835	66	901
Locomotives, rolling stock	48	12,942	899	39	938
Automobiles	580	14,281	2,173	124	2,297
Bicycles	644	16,092	993	78	1,071
Other vehicles	106	838	56	—	56
Shipbuilding	394	56,929	5,074	219	5,293
Tackles	14	174	9	—	9
Safes	44	654	64	2	66
Appliances for gas	45	727	68	1	69
Appliances for waterworks	63	840	71	2	72
Valves, cocks, etc.	123	2,573	241	12	253
Flywheels, gears, etc.	151	4,053	436	23	459
Other machinery and instruments	1,381	41,623	3,784	228	3,962
Total	9,181	365,336	35,747	2,293	38,040
Government plants for machinery and instruments	356	95,878	4,388	49	4,437
Public machinery plants	52	4,531	540	14	554
Grand total	9,589	465,745	40,675	2,356	43,031

Kind of Machinery	Operatives			Others		
	Male	Female	Total	Male	Female	Total
Boilers	1,793	59	1,852	52	2	54
Appliances for gas production	202	—	202	8	1	9
Motors	9,810	552	10,362	250	55	305
Steam engines and turbines	75	—	75	—	—	—
Internal combustion engines	9,311	549	9,860	239	54	293
Water wheels	424	3	427	11	1	12
Electric machinery and instruments	27,467	4,688	32,155	2,480	739	3,219
Cables and insulated wires	4,050	2,224	6,274	267	150	417
Telegraphic and telephonic instruments	5,507	2,081	7,588	449	69	518
Electric batteries	2,675	1,186	3,861	125	39	164
Agricultural implements	3,672	101	3,773	37	10	47
Machinery for buildings and public works	1,324	40	1,364	19	—	19
Machinery for mining	2,439	21	2,460	104	17	121
Spinning and textile machinery	24,040	2,196	26,236	1,183	131	1,314

Kind of Machinery	Operatives			Others		
	Male	Female	Total	Male	Female	Total
Manufacturing machinery and instruments	13,610	267	13,877	224	69	293
Machinery for cement industry	871	—	871	36	5	41
Machinery for paper making	843	—	843	47	2	49
Machinery for chemical industry	4,356	108	4,464	101	9	110
Machinery for foodstuff industry	2,243	87	2,280	48	4	52
Printing machinery	3,016	278	3,294	65	9	94
Other machinery and instruments	2,848	37	2,885	41	3	44
Elevators	363	13	376	14	13	27
Cranes	2,415	12	2,427	106	8	114
Pumps	2,186	4	2,190	105	7	112
Hydraulic press, air compressors, etc.	1,159	6	1,165	23	5	28
Rules, measures, scales, gauges, etc.	3,050	251	3,301	91	7	98
Meters	4,159	588	4,747	129	41	170
Clocks, watches, etc.	4,683	1,868	6,551	115	70	185
Testing machines and scientific instruments	1,298	75	1,283	17	4	21
Surgical instruments	1,166	49	1,215	31	2	33
Surveying and drawing instruments	285	2	287	6	1	7
Calculating machines, registers, typewriters, etc.	908	99	1,007	11	1	12
Cameras, projectors, kinoscopes	1,039	276	1,315	75	7	82
Electric bulbs, etc.	6,003	4,794	10,797	124	84	208
Optical instruments	2,961	324	3,285	178	36	214
Glasses	34	20	54	1	1	2
Musical instruments	2,034	896	2,930	45	14	59
Gramophones	290	12	302	5	—	5
Arms	10,135	554	10,691	227	71	298
Locomotives and rolling stock	11,021	58	11,079	859	66	925
Automobiles	14,393	257	14,650	306	84	390
Bicycles	13,842	930	14,772	189	60	249
Other vehicles	749	22	771	11	—	11
Shipbuilding	49,624	492	50,116	1,105	415	1,520
Tackles	164	—	164	1	—	1
Safes	577	1	577	11	—	11
Appliances for gas	616	22	638	19	1	20
Appliances for waterworks	746	12	758	8	2	10
Valves, cocks, etc.	2,231	49	2,280	31	9	40
Flywheels, gears, etc.	3,399	87	3,486	93	15	108
Other machinery and instruments	35,993	821	36,814	650	197	847
Total	288,199	26,470	314,669	10,142	2,485	12,627
Machinery and instruments for Government plants	85,806	1,737	87,543	3,589	309	3,898
Public machinery plants	3,461	35	3,496	446	35	481
Grand total	377,466	28,242	405,708	14,177	2,829	17,006

Shipbuilding

Introduction

The mercantile shipbuilding industry in Japan developed with the shipping business, while the development of warship building was mainly due to the urgent demands created by the Sino-Japanese and the Russo-Japanese Wars.

Owing to the construction of new vessels to be placed on subsidized lines, easy money and low interest rates, the shipbuilding industry which had been depressed since the close of the World War, revived and boomed temporarily in 1928. Tonnage output, which in 1919 amounted to as much as 674,000 tons, drop-

ped to 53,000 tons in 1926. This was increased to 112,583 tons in 1928, and to 167,365 tons in 1929. However, as the improvement was brought about artificially and not by general improvements in economic conditions, the industry soon became dull again, and was further depressed by the enforcement of the conditions of the London Disarmament Agreement. Naval orders to private shipbuilding companies were reduced by 30%, which, together with the decreased orders from private transportation companies reduced the 1931 output to 84,004 tons and in 1932 to 58,763 tons.

Shipbuilding in 1935

Owing, however, to the subsidies granted by the Department of Communications since 1932 for the improvement of steamers, shipbuilding industries have shown some activities since. The subsidies were granted with an aim of constructing 200,000 tons of new steamers, and closed at the end of March, 1935. The second subsidies will follow and the shipbuilding industry will be more than ever busy. Furthermore, the supplementary plan of the Navy is benefiting authorized dockyards, while orders on cruisers, destroyers, torpedo boats, submarine sweepers, etc. are making other shipyards very busy and prosperous. In addition to this, due to the low exchange rate, enquiries for steamers are forthcoming from Brazil, Siam, Italy, France, Sweden, Soviet Russia, Manchoukuo, China, etc. Statistics as of August 1, 1934 shows that those steamers, the displacement of which is over 100 tons, and which were on keel on that date numbered 104 with total displacement of 143,016 tons, which is the highest record shown since April, 1930. It must not be overlooked that the tendency since 1933 is that small and medium-sized steamers with fast

speed are in great demand. On August 1, 1934, the number of steamers whose displacement was less than 1,000 tons numbered 84, which was 80 per cent. of the total order. In 1933 there were 360 shipbuilding yards of which 55 build steel vessels while the remaining 305 yards other kinds of vessels. The shipbuilding industry in Japan has been growing more lively since last year. There were 91 vessels, each weighing more than 100 tons, with a total gross tonnage of 173,155 were being built at various shipyards of this country on January 1, 1936, according to the Shipping Bureau of the Communications Ministry. On the same day, these shipyards had orders for 69 ships with a total gross tonnage of 175,260 tons, whose keels were not yet laid. The present shipbuilding boom will continue during the next two years even though not a single new order is received. Ships to be built in the next two years are:

Yokohama Dock: Four ships each 1,400 tons, two ships each of 1,000 tons (Mitsubishi orderer) and three ships each of 2,900 tons (Toyo K.K.).

Asano Shipyards: 1,280-ton ship of Hiroumi Steamship, 600-ton ship of Mitsui, 100-ton ship of the Siamese Government, 1,850-ton ship of Sekiguchi Steamship, and 1,280-ton ship of Hinode Steamship.

Uraga Dock: One 2,300-ton ship, two 720-ton ships and six 300-ton ships for the Soviet Union, and 370-ton ship for Suda Steamship.

Harada Steamship: One 300-ton ship for Nanyo Trading. Osaka Iron Works: Three 250-ton ships for Japan Whaling, one 3,900-ton ship for Hamane and Company, three 190-ton ships for the Soviet Union, and a 3,650-ton and 4,750-ton ships for Naigai Steamship.

Mitsubishi's Kobe Yard: A 500-ton ship for a guild in Shimane Prefecture, one 4,250-ton ship for Muko

Steamship, two 260-ton ships for Hayashikane and Company, one 1,000-ton ship for Awa Steamship, one 800-ton ship for Mitsubishi Oil and two 5,400-ton ships for Osaka Shosen.

Kawasaki Dock: One 3,850-ton ship for Okazaki Steamship and one 10,000-ton ship for Lino Trading.

Harima Dock: One 3,500-ton ship for Yamato Steamship, one 3,600-ton ship for Kwaiyo Steamship and four 1,000-ton ships for Sawayama Steamship.

Mitsui Tama Yard: One 5,600-ton for Kyoritsu Steamship, two 4,400-ton ships for Osaka Shosen, one 2,400-ton ship, 6,500-ton ship and 3,300-ton ship, all for Mitsui Bussan, and one 3,500-ton ship for Mr. Shoji Baba.

Mukojima Dock: One 320-ton ship for the Soviet Union.

Takasago Dock: One 100-ton ship for Mr. Chuji Tadamura.

Mitsubishi's Hikoshima: Two 260-ton ships for Hayashikane and Company.

Mitsubishi's Nagasaki: One 8,800-ton ship and 7,000-ton ship both for Osaka Shosen, one 6,600-ton ship for Kinkai Yusen and 6,600-ton ship for

Hiroumi Trading.

Nine ships to a total of 50,700-tons gross will be built under the Government's third "better ship" subsidization programme. The Mitsui Bussan Shipping Department will build a 5,500-ton gross ship (with a speed of 18.7 knots) at its Tama Shipbuilding Yard, the Azuma Steamship Company a 4,150-ton gross ship (15.5 knots) at the Kawasaki Dockyard; the Toyo Kisen Kaisha a 6,500-ton gross ship (16.2 knots) at the Yokohama Dock of Mitsubishi Heavy-Industries; the Naigai Steamship Company a 4,720-ton gross ship (15 knots); the Sato Steamship Company a 4,750-ton ship (15 knots); the Osaka Shosen Kaisha a 5,400-ton gross ship (16 knots) at the Kobe Yard of the Mitsubishi Heavy-Industries; the Takachiho Steamship (15.6 knots) at the Nagasaki Yard of Mitsubishi Heavy-Industries; the Kita Nihon Steamship Company a 4,150-ton gross ship (15.1 knots) at the Uraga Dock; and the Nippon Yusen Kaisha a 7,450-ton gross ship (18.5 knots) at the Nagasaki Yard of Mitsubishi Heavy-Industries. The statistics on various phases of the industry follow:

PRODUCTION OF VESSELS

Year	Steel Vessels		Ships of Other Classes		Total Value in yen	Fittings of ships in yen
	No.	Value	No.	Value		
1925			1,443		66,497,022	4,084,449
1926			1,956		62,608,381	2,386,822
1927			1,433		65,930,642	1,583,123
1928			1,890		48,894,095	1,872,064
1929	846	45,108,579	2,611	79,600,721	52,709,300	1,090,042
1930	269	111,590,483	2,376	3,547,289	115,137,722	807,727
1931	245	34,991,786	1,840	3,184,897	38,176,683	638,378
1932	509	44,224,579	1,987	1,880,400	45,104,979	475,363
1933	335	37,208,750	2,558	2,767,288	39,976,038	316,170
1934	277	53,481,053	2,588	3,994,369	57,475,422	448,353

NUMBER OF OFFICIALS, TECHNICIANS AND WORKMEN IN DOCKYARDS EMPLOYING MORE THAN 5 PERSONS

End of	Officials	Technicians	Workmen	Others	Total
1925	2,316	3,323	81,920	2,685	90,244
1926	2,507	3,393	86,391	2,192	94,283
1927	2,281	3,380	93,807	2,142	101,610
1928	2,628	3,464	91,237	3,110	100,439
1929	2,546	3,376	49,855	3,762	59,539
1930	2,224	3,002	38,036	3,675	46,937
1931	2,053	2,805	33,449	1,207	39,514
1932	1,832	2,495	33,611	1,262	39,200
1933	2,069	2,677	39,068	1,878	45,692
1934	2,267	3,026	50,116	1,520	56,929

CHAPTER XX

UTILITIES

Electricity

Historical Survey

The electric light and power industry in this country dates from November, 1887, when the Tokyo Electric Light Company undertook to light 75 incandescent lamps, using a home-made generator installed at the first commercial plant at Nihonbashi, Tokyo.

Hydro-electric power production was started in 1891 in Kyoto in connection with Lake Biwa canal works. Two motors with 80 kw. each were installed.

The electric railway industry began with the establishment of the Kyoto Electric Railway Co., Ltd., in 1895, followed by the Nagoya Electric Railway Co., Ltd., in 1898. With respect to long distance transmission of electric power, Koriyama Kenshi Boseki Kaisha, Ltd. (Koriyama Silk Spinning Co., Ltd.) succeeded, in 1889, in transmitting 10,000 volts 15 miles. In 1907, Tokyo Electric Light Co., Ltd., completed the hydro-electric power station of 15,000 kw. in Komabashi, Yamanashi prefecture, and succeeded in transmitting 55,000 volts for a distance of 50 miles. This marked a new era for the hydro-electric industry.

The Hydro-Electric Industry

For over 15 years after the electric power industry was first started, coal produced electric power was supreme, and the development of the hydro-electric industry was very slow. In 1903, of the total electric

power of 44,000 kw., 31,000 kw. were produced by coal, the remaining 13,000 kw. were generated by water. However, after the Russo-Japanese War, the hydro-electric industry developed very quickly.

About that time, in view of the success in transmission of power for long distances, the Temporary Investigation Bureau of Hydro-Electric Power was established under the direct supervision of the Minister of Communications, and investigations as to the available water power were made throughout the country. As the result of these investigations and encouragement from the Bureau, hydro-electric power production quickly developed and by 1912 had increased to 233,000 kw. exceeding the thermally produced power by 4,500 kw. Development during and after the World War was rapid, especially after the great earthquake in the Kanto District in 1923. In 1933 the hydro-electric power developed totalled 3,168,705 k.w., while the thermal power amounted to 1,827,131 k.w. The rapid increase in production finally resulted in an over-supply of power, a factor which later became the weakness of the industry. However, a combination of factors has aided the industry to regain prosperity. At the end of 1934 the number of concerns engaged in electric business was 830 and that of electric plants for their own use of electricity was 7,916. The total capacity of these 8,746 plants aggregated 5,450,000 k.w., the hydro-electric 3,270,000 k.w. and the thermal-electric 2,180,000 k.w. The plants underconstruction were to have a combined capacity of 2,040,000k.w.

tric 2,180,000 k.w. The plants underconstruction were to have a combined capacity of 2,040,000k.w.

Present Position of Hydro- and Thermal Electric Industry

During 1931, the price of coal declined, and the cost of thermal electric power became lower than hydro-electric power, and from that time on thermal power began to draw attention. In 1934, owing to an increased demand for electric power, new plans for obtaining the source of power were contemplated, in which thermal power came to occupy an important position, inasmuch as it was then considered as an independent source, and not as a supplementary source to water power. In the same year the Kwansai Kyodo Kwaryoku Co. (thermal power), which was established to facilitate the plan of control of power, began to operate. The demand for power was so large that it exceeded the supply, and the company is obliged to increase its capacity to 250,000 k.w. before the end of 1935. In Kyushu districts, the Kyushu Kyodo Kwaryoku Co. was established in December, 1934. So also in Kwanto districts, a plan to establish the Kwanto Kyodo Kwaryoku Co., with a view to unifying the work of control of power, was advanced.

The Tokyo Electric Light has

completed a plan to get 100,000 k. w. from the thermal source at Tsurumi before the end of 1935. The Daido Electric Power and the Toho Electric Power are each following suit in increasing about 45,000 k. w. through thermal source, and thermal electric industry is changing its position as from a supplementary to an independent one.

COMPARISON OF ELECTRIC POWER GENERATED (in k.w.)

Year	Hydro-electric	Thermal	Total
1907	88,622	76,288	114,910
1912	233,839	228,864	462,203
1917	511,090	364,474	875,563
1918	597,124	386,842	983,966
1919	710,929	422,314	1,133,243
1920	825,387	552,159	1,377,546
1921	914,744	611,974	1,526,718
1922	1,070,060	709,113	1,779,173
1923	1,307,705	755,079	2,062,785
1924	1,474,357	763,146	2,237,503
1925	1,813,508	954,633	2,768,141
1926	1,965,070	1,236,644	3,202,614
1927	2,111,087	1,356,044	3,467,131
1928	2,290,351	1,531,703	3,822,054
1929	2,581,949	1,611,674	4,193,623
1930	2,797,637	1,601,677	4,399,314
1931	3,056,936	1,599,588	4,656,524
1932	3,105,930	1,827,131	4,933,061
1933	3,168,705	1,912,037	5,080,742
1934	3,244,000	2,070,000	5,314,000

The quantity of power generated in Japan proper according to the report of 96 electric suppliers, who supply 95 per cent. of the total electric power in Japan, classified according to hydro and thermal sources, and also by month, in 1935 follows:

QUANTITY OF POWER CONSUMED BY MONTH

(in 1,000 K. W. H.)

Districts	Honshu			Shikoku			Kyushu		
	Hydro	Thermal	Total	Hydro	Thermal	Total	Hydro	Thermal	Total
Total 1934	12,690,000	2,756,000	15,446,000	372,800	50,300	965,500	1,553,000	1,555,000	3,108,000
1935									
Jan.	1,063,000	350,000	1,413,000	28,500	13,900	42,400	122,000	95,000	217,000
Feb.	932,000	357,000	1,289,000	29,400	7,500	36,900	109,000	94,000	203,000
March	1,199,000	261,000	1,460,000	35,800	4,900	40,700	142,000	85,000	227,000
April	1,180,000	395,000	1,415,000	374,000	4,000	378,000	182,000	58,000	240,000

Districts	Honshu			Shikoku			Kyushu		
	Hydro	Thermal	Total	Hydro	Thermal	Total	Hydro	Thermal	Total
May	1,213,000	252,000	1,465,000	35,000	3,300	38,300	134,000	91,000	225,000
June	1,112,000	277,000	1,389,000	34,100	5,300	39,400	120,000	91,000	211,000
July	1,200,000	233,000	1,433,000	37,530	1,500	39,000	190,000	57,000	247,000
Aug.	1,135,000	265,000	1,401,000	34,200	3,600	37,800	187,000	57,000	244,000
Sept.	1,301,000	124,000	1,425,000	38,200	700	38,900	194,000	55,000	249,000
Oct.	1,320,000	214,000	1,534,000	35,400	4,700	40,100	200,000	63,000	263,000
Nov.	1,627,000	267,000	1,894,000	32,000	8,300	40,300	177,000	78,000	255,000
Dec.	1,271,000	334,000	1,605,000	36,300	8,900	45,200	176,000	87,000	263,000

Districts	Hokkaido			Total of the country (Unit: 1,000 k.w.h.)		
	Hydro	Thermal	Total	Hydro	Total	Total
Total 1934	668,000	22,900	69,090	15,284,000	3,794,000	19,078,000
1935						
Jan.	54,700	5,000	59,700	1,259,000	466,000	1,786,000
Feb.	48,300	5,900	54,300	1,119,000	464,000	1,584,000
March	51,900	5,200	57,100	1,429,000	355,000	1,785,000
Apr.	57,100	2,500	59,600	1,457,000	300,000	1,757,000
May	58,500	2,800	61,300	1,442,000	350,000	1,772,000
June	59,400	1,400	60,800	1,325,000	375,000	1,702,000
July	59,300	1,100	60,400	1,487,000	294,000	1,781,000
Aug.	60,800	1,000	61,800	1,419,000	327,000	1,746,000
Sept.	59,600	1,100	60,700	1,594,000	182,000	1,777,000
Oct.	64,700	1,300	66,000	1,621,000	283,000	1,905,000
Nov.	65,800	1,600	67,400	1,542,000	355,000	1,898,000
Dec.	66,100	3,200	69,300	1,549,000	434,000	1,934,000

Trend of Demand

For Lighting In 1934 the number of electric-lighted households increased by 332,459 as compared with the previous year. In the number of lamps also the ever advancing tendency was kept unchanged.

In 1934 the average consumer had 3.46 lamps and the average lamp used 21 candle power. These figures contrast with 2.4 lamps and 11.9

candle power in 1917. Of the total number of electric lamps which reached 40,532,219 in 1934, demand in the 125 cities comprised 55 per cent. and the average number of lamps used in an urban household was 5.1.

The growth of the demand for power for lighting purposes in the country as a whole and in the prefectures, in 1934, is as shown in the following two tables:

GROWTH OF DEMAND FOR POWER FOR LIGHTING

Year	No. of consumers	No. of lamps	Candle-power for these lights	Electric power for these lamps kw.
1924	8,976,991	24,447,682	404,210,635	556,211
1925	9,652,058	27,320,740	461,073,576	574,268
1926	10,165,739	30,159,042	547,918,369	683,584
1927	10,547,235	32,322,991	605,604,846	736,169
1928	10,847,432	33,909,420	656,348,698	797,458
1929	11,170,618	35,833,353	704,634,862	863,046
1930	11,352,372	36,839,607	728,869,987	887,703
1931	11,446,529	37,413,988	782,340,943	959,144
1932	11,530,440	38,048,413	799,183,116	978,846
1933	11,383,235	38,382,771	810,000,000	990,000
1934	11,715,694	40,532,219	—	—

ELECTRIC LIGHTING IN THE VARIOUS PREFECTURES AT THE END OF 1934

(Number of lights per 100 persons)

Prefecture	Number	Prefecture	Number	Prefecture	Number	Prefecture	Number
Tokyo	120.0	Yamanashi	50.4	Osaka	91.3	Hiroshima	61.7
Kanagawa	78.8	Aichi	69.6	Kyoto	119.2	Tottori	45.4
Saitama	42.5	Miyé	48.9	Hyogo	82.0	Shimane	47.7
Gumma	44.2	Gifu	51.9	Nara	64.2	Okayama	59.3
Chiba	39.7	Nagano	46.2	Shiga	54.9	Yamaguchi	53.1
Ibaraki	27.8	Fukui	71.6	Wakayama	57.6	Kagawa	48.8
Tochigi	35.1	Ishikawa	64.4	Tokushima	43.4	Ehimé	44.5
Shizuoka	55.1	Toyama	56.1	Kochi	42.3	Kumamoto	49.7
Nagasaki	37.5	Miyazaki	38.8	Niigata	49.5	Yamagata	35.4
Fukuoka	56.2	Kagoshima	25.6	Fukushima	31.2	Akita	29.3
Oita	53.5	Okinawa	6.4	Iwate	25.2	Hokkaido	36.0
Saga	46.0	Miyagi	39.2	Aomori	36.4	Average	59.4

For Power Purposes The increase of demand for electric power is even more marked than that for light. At the end of 1931, the number of motors obtaining power from electric power suppliers was 390,000 and the power supplied 1,320,000 h.p. The number of motors getting supplies from their own plants or from Government official plants was 129,000, the amount of power drawn being 2,513,000 h.p. This made a total of 519,000 motors and 3,833,000 h.p. and when compared with figures of 1922, the number of motors had trebled, while the h.p. had doubled.

Electric power supplied for purposes other than lighting or motive power, i. e., power supplied to the electro-chemical industry or for family use, amounted, at the end

of 1932, to 951,412 kw., four times as much as that supplied in 1922. The increase of demand for electric power for private purposes deserves special notice and the following two tables show the growth of demand for electric power, since 1922, and the chief consuming industries.

AMOUNT OF ELECTRIC POWER SUPPLIED TO VARIOUS KINDS OF INDUSTRIES, ETC.

at the end of 1934

(in 1,000 k.w.)

Textile industry	552
Metal	501
Machinery industry	203
Ceramics	211
Chemical	773
Saw mills and wood-working industry	145
Printing and bookbinding industry	21
Foodstuff industry	311
Mining	302
Agricultural and aquatic industries	81
Miscellaneous industries	74
Other than industry	641
Total	3,818

INCREASING DEMAND FOR ELECTRIC POWER

Year	Electric motors		Amount of kw. supplied for other electrical equipment kw.
	No. of motors	Horse-power	
1923	204,954	1,726,737	232,604
1924	248,756	1,823,235	274,367
1925	261,592	2,087,008	303,983
1926	298,956	2,202,690	341,981
1927	339,737	2,404,569	446,366
1928	412,156	3,050,390	685,054
1929	456,793	3,319,217	689,811
1930	497,757	3,577,410	864,095
1931	519,765	3,832,517	929,510
1932	565,602	3,834,462	951,412
1933	—	4,364,257	—
1934	No. of users 1,181,715	Contracted k.w. 3,205,114	—

Electric Power Suppliers

The following tables show the number of suppliers of electric power and power supplied in 1934.

POWER SUPPLY COMPANIES

Year	Generating Water	Steam	Purchasing	Total	
1928	Opened	449	52	263	764
	Unopened	15	8	55	78
	Total	464	60	318	842
1931	Opened	305	45	385	733
	Unopened	5	7	28	40
	Total	310	52	411	733
1932	Opened	366	59	391	816
	Unopened	8	5	21	34
	Total	374	64	412	850
1933	Opened	345	56	417	818
	Unopened	7	3	15	25
	Total	352	59	433	843
1934	Opened	331	60	413	804
	Unopened	11	3	12	26
	Total	342	63	425	830

INCREASE OF CAPACITY TO GENERATE POWER

Year	Water power	Thermal power	Total
1924	1,474,357	763,146	2,237,503
1925	1,513,508	954,633	2,468,141
1926	1,965,970	1,226,644	3,202,614
1927	2,111,087	1,356,044	3,467,131
1928	2,290,351	1,531,703	3,822,054
1929	2,581,949	1,611,674	4,193,623
1930	2,797,637	1,601,577	4,399,214
1931	3,056,936	1,599,588	4,656,524
1932	3,195,930	1,827,181	4,933,061
1933	3,168,705	1,912,037	5,080,742
1934	3,263,834	2,223,113	5,491,947

The industry in 1935 The electric light and power business for 1935 was satisfactory as was the case with the year before, with an increasing demand and reduced financial burdens following the progress of the low money rate tendency. Profits made a big gain. Business of retailing companies increased especially, while no considerable business improvement was observed for wholesaling companies, as they are bound by long-term contracts. Those supplying light and power, such as the Tokyo Electric Light Company

and Toho Electric Power Company realized much profits. Tokyo Light twice increased its dividend rates last year and Toho Power increased its capitalization half the amount and increased the dividend. Dividend rates of leading companies for 1935, compared with those for 1932, follow:

	1932		1935	
	1st half	2nd half	1st half	2nd half
	(Annual dividend rate in per cent)			
Tokyo Light	8	2	6	7
Toho Power	7	5	7	8
Daido Power	6	4	5	5
Nippon Power	5	5	6	7
Ujigawa Power	6.5	5	no	5
Dai Nippon Power	9	9	9	9
Kyushu Hydro	8	7	6	7
Kyoto Light	8	8	8	8
Godo Electricity	7	7	5	6
Yahagi Hydro	7	7	7	7
Hiroshima Electricity	8	8	8	8
Kinugawa Hydro	6	6	5	5
Toshin Electricity	8	8	9	9
Chubu Electricity	8.5	8	8	8
Niigata Power	8	8	8	8
Chuo Electricity	8	8	8	8
Tobu Power	6	6	6	6
Kumamoto Electricity	10	10	10	9
Taiwan Power	6	6	6	6
Keijo Electricity	11	10	10	10

Since the replacement of the gold embargo the demand for light and power has gained considerably. The number of lamps fitted in Tokyo and Osaka at the end of 1935 totalled 16,665,000, gaining 604,000, or 4.3 per cent., over the year before. The number of gain for 1934 over 1933 was, by the way, 765,000 lamps. Lamps fitted at the end of the previous five years were:

	Fitted by Tokyo Light	Fitted by Tokyo City	Fitted by Osaka City
	(In 1,000)		
1931	10,246	1,046	2,882
1932	10,607	1,078	2,984
1933	11,002	1,119	3,084
1934	11,374	1,161	3,434
1935	11,869	1,214	3,581

Since the replacement of the gold embargo the number of lamps increased in Tokyo has been 1,791,000 and that in Osaka 700,000. The power supply also has gained gradually, as follows:

	By Tokyo Light	By Tokyo City	By Osaka City
	(1,000 kilowatts)		
1931	742	39	147
1932	816	41	157
1933	887	42	166
1934	931	43	187
1935	1,016	44	204

Electric light income of the Tokyo Electric Light Company for the first half of 1935 amounted to ¥33,457,000 and for the second half ¥32,098,000. Its power income for the first half totalled ¥33,400,000 and for the second half ¥34,135,000. Electric light income of the Toho Electric Power Company for the first half of 1935 amounted to ¥11,787,000 and that for the second half ¥15,420,000. With the increase of demand, the supply had to be increased. Last year Tokyo Light started construction work of power station along the Ono River, Toho Power that along the Hida River, Daido Power that along the Kasagi River, the Yahagi Hydro-Electric Power, Gumma Electric Power, Oigawa Electric Power and others also started the construction work of their power stations. Tokyo Light also enlarged its steam power station at Tsurumi, Toho Power its steam power plant in Nagoya and Kwansai Joint Steam Power its plant in Osaka. These enterprises of new construction and expansion have been the first since the period of economic recovery. With the increasing profits, the values of their stock shares have turned upward. Tokyo Light share, for instance, which was quoted at ¥40 early in 1935 went up to ¥60 late in the year. The gain of ¥20 a year is

a rare matter for power shares. Prices of all other power shares rose without exception. Domestic and foreign debts of Tokyo Light and Toho Power for the last six terms follow:

	Tokyo Light	
	Domestic Debts	Foreign Debts
	(¥1,000)	
1st half 1933	462,108	456,504
2nd half 1933	462,119	446,952
1st half 1934	461,821	438,533
2nd half 1934	472,959	437,756
1st half 1935	481,379	435,849
2nd half 1935	488,090	429,288

	Toho Power	
	Domestic Debts	Foreign Debts
	(¥1,000)	
1st half 1933	144,788	146,261
2nd half 1933	145,237	126,558
1st half 1934	146,828	138,233
2nd half 1934	147,982	129,544
1st half 1935	166,275	105,182
2nd half 1935	168,199	109,534

Power Control Plan With the formation of the Hirota Cabinet the electric power control came to be planned. The plan was drafted first by the Cabinet Inquiry Bureau, but is laid aside as reference. The matter is now left to the Communications Ministry. It is unknown how far the plan will affect the electric power companies, but it is true the "Big Five" companies will be affected more or less seriously by the execution of the plan. The combined equipment of them is valued at ¥1,500,000,000, corresponding to about 30 per cent. of the entire equipment value of about ¥5,000,000,000 in Japan. The water power generation equipment of the Big Five is estimated at 1,040,000 kilowatts, one-third of the totally developed equipment of 3,244,000 kilowatts in Japan. Their total steam power generation is 660,000 kilowatts, about

30 per cent. of the total of 2,070,000 kilowatts in Japan. The Big Five companies have an enormous amount of debts. Their outstanding debts are more than ¥830,000,000, including their foreign debts involving \$101,000,000 and £4,200,000. These foreign debts are calculated on the mint par value and, if calculated on the present exchange rate, will be far higher. The total will become about ¥1,000,000,000. The construction expenses of the Big Five are ¥1,544,003,360, as follows:

Tokyo Electric Light	¥769,184,001
Toho Electric Power	164,211,716
Nippon Electric Power	207,840,696
Daido Electric Power	206,091,881
Ujigawa Electric Power	196,675,057
Total	1,544,003,360

The total includes ¥609,500,000 for the power generation equipment,

¥286,700,000 for power transmission equipment and ¥200,600,000 for sub-station expenses, with an aggregate of ¥1,010,000,000. The generation equipment of the Big Five is 1,679,000 kilowatts. In addition, they are buying 1,320,000 kilowatts of power from other companies. Details of their generation equipment at the end of 1935 follow:

	Water Power	Steam Power	Total
	(In kilowatts)		
Tokyo Light	487,891	136,000	623,891
Toho Power	82,759	115,000	197,759
Nippon Power	140,152	204,000	344,152
Daido Power	230,700	100,500	331,200
Ujigawa Power	97,743	103,000	200,743
Total	1,039,245	658,500	1,697,745

The rate of profit earned by all companies is as shown in the following table:

PROFITS OF ELECTRIC INDUSTRY 1924-1934

Year	Paid-up capital	Profit	Rate of profit against paid-up capital
	yen	yen	yen
1924	2,012,205,000	217,249,000	11.0%
1925	2,218,649,000	252,977,000	11.0
1926	2,453,588,000	279,331,000	11.0
1927	2,677,153,000	279,541,000	10.5
1928	2,868,717,000	282,880,000	10.0
1929	3,019,222,000	301,900,000	10.0
1930	3,180,810,000	255,800,000	8.0
1931	3,234,181,000	227,061,830	7.0
1932	3,326,834,000	195,997,000	5.9
1933	3,494,202,000	183,100,000	5.2
1934	3,956,586,518	205,005,470	5.2

Gas Industry

Introduction

When compared with the electric industry, the gas industry has been very slow in its development. The introduction of gas took place in 1885, when it was used in Yokohama for street lighting purposes. Later

in the same year Tokyo adopted it for the same purpose. The capital invested in 1885 was ¥54,000, and a slow but steady increase took place until 1925, when the invested capital stood at ¥276,373,000. After that year the industry made great strides as the following figures show:

End of	Material Consumed	Supply	No. of Consumers	Consumption			
	Coal	Output		Amount Supplied to Consumers	No. of Lights and Burners	Motors	
							Number
	Metric ton	Thousand cubic metres	Thousand cubic metres				
1917	658,530	226,209	229,501	549,565	2,455,241	1,703	531,885
1918	735,161	259,892	261,371	505,401	2,364,394	1,531	414,815
1919	718,574	277,096	275,212	530,061	2,182,307	1,469	13,141
1920	727,705	293,414	294,544	492,214	2,195,732	1,184	11,455
1921	718,271	305,666	306,470	502,828	2,234,623	966	9,938
1922	761,262	345,240	347,261	552,367	2,353,674	867	9,415
1923	707,226	329,017	326,517	463,746	798,032	699	7,058
1924	727,314	353,266	352,952	568,477	1,606,096	559	6,616
		* 37,238					
1925	781,911	354,362	408,418	683,087	1,865,183	497	6,648
		* 36,605					
1926	904,087	444,890	423,932	795,226	2,043,829	429	6,638
		* 42,580					
1927	1,036,552	496,810	486,911	953,688	2,234,722	358	6,524
		* 68,096					
1928	1,191,007	576,140	578,493	1,212,024	2,623,257	308	6,162
		* 88,884					
1929	1,343,137	639,972	653,837	1,462,221	3,057,487	265	6,023
		* 88,566					
1930	1,305,297	668,329	700,249	1,622,982	3,438,194	224	4,712
		* 103,088					
1931	1,329,869	691,222	740,081	1,716,662	3,704,090	193	3,307
		* 89,742					
1932	1,283,216	734,188	712,717	1,785,205	3,921,620	186	3,237
1933	1,402,000	770,447	709,967	1,866,369	4,145,549	—	—
1934	—	—	741,787	1,906,409	4,242,215	—	—

Note: * Aqueous Gas.

Present State of the Business

General Aspects The difficulty of disposition of by-products which was a stumbling-block to the development of the gas industry disappeared along with activities in heavy and chemical industries, and the industry's policy to increase demand through lowering the price of gas came to reap its fruits. In fact, the gas industry may be said to be developing with the prosperity in cities which is caused through inflation. On the other hand, the higher prices of coal and steel are making both production and construction costs higher.

Demand on Gas The demand for gas is making a steady increase every year. Working results of five

large companies in 1933 and 1934 were as follows:

PRODUCTION OR SALES OF GAS BY FIVE LEADING COMPANIES

Name of Co.	(In 1,000 cu.m.)		Percentage of increase in 1934
	1933	1934	
Tokyo Gas	402,248	415,500	4.3%
Toho "	35,970	36,421	1.3%
Kyoto "	39,854	40,522	3.0%
Osaka "	115,243	133,235	15.6%
Kobe "	40,255	43,715	8.6%
Total	633,070	669,397	5.7%

Figures show 5.7 per cent. increase over 1933. The abrupt increase in Osaka and Kobe in 1934 is due to ordinary increase in number of consumers as well as to the damages caused by the typhoon of that year. Owing to improvements in various gas appliances, gas is now

used in a very economic way so that the consumption of gas per meter is decreasing. The increase in demand is therefore solely due to increase in number of consumers.

Higher Cost of Production The biggest problem for gas producers in 1934 was the higher prices of coal and steel, the former having relations with the cost of gas production and the latter with expansion of the industry. The price of coal rose from ¥8.10 per ton in 1932 to ¥12.32 in 1934. As the contract for the purchase of coal runs generally a year, the result of the purchase generally appears in the following year. From the above figures, therefore, the production cost of gas in 1935 will be about 50 per cent. higher than that for 1933, and the price of coal has now become a subject of great importance to the gas industry.

Fortunately the prices of coke and other by-products rose owing to increased demand on these from heavy and chemical industries, and this enabled producers to make good in 1934 the disadvantages caused by the higher price of coal. However, the income from gas which occupies about 70 to 80 per cent. of the total income is fixed and cannot be increased under the present system. Though the increase in the price of coal may also increase the price of the by-products, whether the latter can cover in 1935 the loss caused by the former remains still to be seen.

The average price of bar steel in 1932 was ¥67, which went up to ¥96 in 1933, and to ¥100 in 1934. The burden which came from the higher price of steel materials was not as serious as that of coal. Especially as this came about after most of the producers had completed new expansion works, the degree of pressure which it brought to bear upon the business of producers was comparatively small.

Industry in 1933-1935 According to figures published in 1934, the number of gas enterprises in 1933 was 102 opened and 14 unopened. As compared with the previous year, the number opened increased by 2 while the number unopened decreased by 1, 95 of the opened are private enterprises while 7 are the city-managed. Again, 87 of them are exclusively engaged in gas while those jointly engaged with electric industry numbered 15, of which 10 were of private, 1 the city-managed and 4 managing with various kinds of enterprises. The formation of capital of the industry in 1933 and 1934 is as shown below. The reason that the capital increased in 1934 was due to establishment of new companies and payment of unpaid capital. In the capitalization columns the investment in the electric enterprises is included and the real capital invested in purely gas industry is estimated to run from ¥273,000,000 to ¥280,000,000.

BUSINESS RESULTS OF GAS COMPANIES

(In ¥1,000)

Year	Paid-up Capital	Fixed Capital	Profit	Percentage of profit against Fixed Capital	Dividend rate
1930	350,232	459,686	48,874	9.2%	9.6%
1931	382,930	555,614	50,896	9.0	8.7
1932	395,632	571,564	51,452	8.7	8.3
1933	400,908	580,053	50,317	9.1	8.0
1934	419,096	584,323	53,029	9.1	7.8
1935	440,210	585,998	60,295	13.6	7.6

Warehousing

History

Since warehousing depends on the storing of large quantities of goods, transportation facilities are the factors which influence its success, an expansion of one calls for an expansion of the other and, in Japan, it was the development of transport facilities in the days of Meiji which gave rise to the modern warehousing business.

Warehouses of kinds have always existed. Emperors in olden times kept rice and cereals in warehouses for military purposes. Later, cereals were kept to provide for relief of the people in case of poor crops, but in either case, the warehouses were used for military or political, not commercial, purposes. When the Tokugawas came to rule the country as Shoguns about three hundred years ago, both Yedo (present Tokyo) and Osaka became great cities where trade and commerce flourished. Transportation by sea developed, and many feudal lords came to reside in these cities, bringing with them, or having sent to them, the agricultural products of their country districts. The produce was stored at the lords' residences, which became, in a sense, public warehouses. The produce was sold by public tender and to the successful bidder a memorandum was given against receipt of payment in cash. This memorandum was equivalent to the warehouse receipt of the present day, and the holder of the memorandum was authorized to keep his cereals in the warehouse for the time stipulated on it. Loans were often raised with memoranda as collaterals.

After the Restoration, owing to development of commerce and activity in the movement of goods,

many warehouse businesses were started, the first company, to operate on a modern basis being the Soko Kaisha in Fukagawa, Tokyo, established in 1881 with a capital of ¥65,000. Dissolution took place 3 years later. In Osaka, the Konoike family organized the Osaka Soko Kaisha with a capital of ¥200,000 in 1882. In 1883, the Sanbashi Kaisha in Kobe, and in 1884, the Otsu Soko Kaisha in Otsu in Miyé prefecture, were established. In 1886, the Tokyo Soko Kaisha, Ltd., was founded by the Iwasaki family. After that year there was no great change until after the Sino-Japanese War, when, with increased foreign trade and improved transportation facilities by land and sea, the number of warehouse companies rapidly increased. In 1906, there were 536 people engaged in the warehouse business, either on private account or on an incorporated basis.

Present State of the Business

The Area At the end of 1934 the number of warehouse managements which belong to the Japan Warehouse Association and which are located in principal cities is 107, and the total area covered by them is about 189,000 tsubo, with the commodities valued at ¥661,809,000. However, there are many warehouse managements, incorporated or otherwise, which do not belong to the Association. According to an investigation made by the Department of Commerce and Industry, the number of warehouse managements in the country totalled 578 in 1933, which owned 4,934 warehouses covering an area of 681,966 tsubo, besides renting 1,310 warehouses, the area of which totalled 136,012 tsubo. These warehouses are of various types, some of

them being of reinforced concrete, some of brick or stone, some of iron frame and tin plates, some of store-house type, while others are merely zinc sheet covered or of wood.

Value of Commodities The values of commodities stored in the 107 warehouses above mentioned were as follows:

VALUE OF BALANCE OF STOCKS IN WAREHOUSES

(unit ¥ 1,000)

	1921	1931	1932	1933	1934	1935
Balance at the beginning of the year	855,260	356,844	409,988	485,987	585,085	661,889
Balance at the end of June	545,471	458,917	546,683	629,965	775,846	686,155
Increase or decrease during the half-year	*309,789	102,073	145,690	143,978	190,761	24,546

* Decrease

The figures for 1921 are given here to show that the stocks accumulated after the great slump in 1920 have been cleared away. Scarcely any stocks are kept for the purpose of speculation. When studied in con-

junction with the following table the decrease in value indicates that not only has the quantity of goods decreased, but the price level in general is lower.

BALANCE OF STOCKS IN WAREHOUSES IN NUMBER OF PARCELS

(unit 1,000 pieces)

	1921	1931	1932	1933	1934	1935
Balance at the beginning of the year	23,125	21,270	22,299	35,509	28,892	33,016
Balance at the end of June	28,901	22,113	24,866	20,509	40,208	33,450
Increase or decrease in June over Jan.	5,776	843	2,567	(-)15,969	11,316	431

WAREHOUSED COMMODITIES (Japan Warehouse Ass'n)

Date	All Japan (a)		Six leading cities (b)					
	No. of Parcels (in 1,000)	Value (in 1,000 yen)	Re-ceipts	With-drawals	Balance	Re-ceipts	With-drawals	Balance
1933 Nov.	22,905	516,767	3,745	4,393	17,131	164,050	178,567	458,221
" Dec.	28,893	585,086	8,552	4,884	21,013	208,639	158,846	506,574
1934 Jan.	34,706	652,066	8,515	5,147	24,381	214,741	168,146	553,466
" Feb.	38,603	696,817	7,898	5,353	26,917	205,121	171,361	587,229
" March	42,361	746,637	7,478	4,537	29,858	209,017	168,384	627,538
" April	43,582	777,085	5,794	4,588	31,065	180,183	151,672	656,370
" May	42,425	777,376	4,555	5,297	30,323	173,694	168,586	661,479
" June	30,208	775,847	3,817	4,562	29,579	161,202	156,675	666,006
" Jul.	38,979	778,819	4,483	4,947	29,115	178,934	171,053	678,987
" Aug.	37,503	757,334	4,275	5,172	28,218	171,414	191,206	654,093
" Sept.	35,332	712,122	3,636	5,033	26,821	142,421	178,770	617,743
" Oct.	32,036	664,519	4,059	7,270	23,611	171,918	216,981	572,682
" Nov.	30,859	630,889	4,159	5,588	22,182	147,541	182,246	537,977
" Dec.	33,017	661,809	6,305	5,364	23,123	197,495	175,237	569,233
1935 Jan.	34,534	703,536	5,815	4,892	24,046	196,950	161,642	595,543
" Feb.	36,288	741,293	6,327	4,798	25,576	198,341	162,856	631,928
" March	38,273	770,737	6,327	5,423	26,806	211,402	185,669	656,760
" April	38,854	758,268	5,590	5,689	26,707	184,202	195,747	645,215
" May	26,290	719,668	4,939	5,786	25,859	183,905	211,457	617,664
" June	33,450	686,155	4,885	6,811	22,620	188,502	218,279	565,105

Date	All Japan (a)			Six leading cities (b)				
	No. of Parcels (in 1,000)	Value (in 1,000 yen)	Re-ceipts	With-drawals	Balance	Re-ceipts	With-drawals	Balance
1935 July	80,706	656,428	—	—	—	—	—	—
" Aug.	28,600	816,771	4,072	5,852	20,839	180,059	221,288	524,876
" Sept.	27,253	550,614	3,930	5,866	18,964	166,552	236,077	455,352
" Oct.	24,713	505,384	4,328	6,271	16,661	187,024	229,847	412,529
" Nov.	24,746	593,850	4,476	4,998	16,440	189,887	195,288	407,178
" Dec.	27,285	587,810	5,583	5,185	16,837	210,069	187,560	429,627
1936 Jan.	29,153	577,466	6,246	4,306	18,277	197,046	178,248	453,425
" Feb.	33,178	615,316	6,052	4,970	19,369	192,242	165,012	479,656
" Mar.	32,095	647,026	6,322	5,525	20,055	220,093	187,729	512,019

(a) 108 storage plants in Mar. '35. (b) 42 storage plants in Tokyo, Osaka, Kobe, Yokohama, Shimonoseki-Moji and Nagoya. Figures for July, 1933, and thereafter include those for Nagoya.

Insurance All warehoused goods are insured against fire. At present, the custom in Japan is that the warehouse companies become, on their own account, insurers of the goods for the customers, who, therefore, get the benefits of insurance without going to the trouble of insuring them themselves, a custom which differs from that in Europe and America. According to the Japanese system, therefore, when the warehouse companies issue warehouse receipts, they are required by law to insert the fire insurance clause in the receipts. Accordingly, transactions made through warehouse receipts will also settle questions connected with fire insurance, a system not followed in Europe and America.

Without the insurance system it would have been next to impossible to give such adequate statistics as are contained in the above tables, which are the balances of outgoing and incoming goods as entered in the account books of the above-mentioned 96 warehouses and published as totals by the Association of Japanese Warehouse Companies.

Storage Charges Storage charges are calculated on a combined ad valorem and weight basis. Therefore, when the price of an article declines, the storage charge declines

also. Different ad valorem rates exist for different classes of goods and the same is true of the charges by weight, the extent of responsibility of the warehouse company and the importance of any particular goods to the public at large being taken into consideration. For instance, rice is a necessity of life for the Japanese, so the rate is very low. For weight or measurement goods are divided into 60 classes.

Characteristics of the Business

In Japan, there are numerous warehouses called "producers' warehouses." Actually, such warehouses are agricultural produce storehouses, places where seasonal commodities can be collected and stored until the market can absorb them at fair prices. The farmers are thus protected and assistance can be rendered them through the arrangement of credits, a duty undertaken by the warehouses. Besides protecting farmers from severe economic competition the warehouses are valuable nationally for promoting the policy of self-support and sufficiency in foodstuffs. Rice and cocoons are the chief commodities handled.

Warehouse Business in 1934-1935

Owing to great industrial activities, movement of commodities by

railways was very brisk, which was also reflected in receipt and forwarding of commodities by warehouse companies. According to an investigation made by Japan Warehouse Association, the receipt and forwarding of commodities by warehouse companies in six leading cities in 1934 showed 14 per cent. increase

in units in receipts as compared with 1933 (value decreased by 1 per cent.), while outgoing commodities increased 17 per cent. (value decreased by 0.2 per cent.). The 1934 business decreased in the number of parcels, but increased in the value. The following table shows the conditions of business :

AMOUNT OF COMMODITIES WHICH WERE RECEIVED AND FORWARDED
BY WAREHOUSE COMPANIES IN SIX LEADING CITIES

(In 1,000 units and ¥1,000,000)

Year	No. of units		Value	
	Warehoused	Forwarded	Warehoused	Forwarded
1933	57,025	53,751	2,176	2,105
1934	64,970	62,863	2,154	2,100
1935	60,732	67,019	2,249	2,379

Chief Warehouse Companies

Companies	Year established	Authorized capital	Paid-up capital	Places where warehouses are located	Head office
Mitsubishi Warehouse Co., Ltd.	1886	10,000,000	10,000,000	Tokyo, Yokohama, Kobé, Osaka and Moji	Tokyo
Toshin Warehouse Co., Ltd.	1909	15,000,000	12,500,000	Tokyo, Yokohama, Nagoya, Osaka, Kobé & Moji	"
Sumitomo Warehouse Co., Ltd.	1925	15,000,000	15,000,000	Osaka, Kobé and Tokyo	Osaka
Toyo Warehouse Co., Ltd.	1925	6,000,000	3,500,000	Nagoya, Toyohashi, Ichinomiya and Tsushima, all of which are in Aichi prefecture	Nagoya
Teikoku Zanshi Soko Co., Ltd.	1926	3,000,000	750,000	Yokohama	Yokohama
Shibusawa Warehouse Co., Ltd.	1909	2,000,000	2,000,000	Tokyo, Otaru and Moji	Tokyo
Koa Kogyo Co., Ltd.	1919	10,000,000	5,000,000	Tokyo and Yokohama	Tokyo
Tokyo Warehouse Co., Ltd.	1904	750,000	625,000	Tokyo	Tokyo
Teikoku Soko Unyu Co., Ltd.	1907	2,000,000	2,000,000	Tokyo	Tokyo
Yokohama Warehouse Co., Ltd.	1906	3,800,000	1,748,000	Yokohama	Yokohama
Naniwa Warehouse Co., Ltd.	1931	3,000,000	3,000,000	Osaka, Yokohama, Kobé and Shimonoseki.	Osaka

CHAPTER XXI

FOODSTUFFS

Wheat Flour

Historical Survey

Before the Russo-Japanese War It was not until after the Russo-Japanese War (1904-5) that the wheat flour industry made any progress in Japan. Prior to the war there was a fairly large consumption, but manufacturing was only in the infant stage, most of the production being with the help of water-wheels. The daily output by this method was only 10 to 50 or 60 bags; the quality was poor and not uniform and, being packed in straw bags, the product was not at all satisfactory. It was only in the year 1895 that wheat flour was first produced on a modern basis by machinery. In that year, the Nippon Seifun Kaisha, Ltd., began to operate mills with a capacity of 200 koku per day, and gradually, mills with capacities of 50 to 100 koku a day were established, but progress was very slow. However, the demand for flour increased and as production could not keep pace with it imports naturally increased. In 1895, imports were 280,000 bags, valued at ¥400,000, ten years later imports had increased to 4,990,000 bags, valued at ¥9,950,000. Imported and water-mill produced domestic flour together satisfied practically the whole of home consumption, while domestic flour made by machinery formed but a very small part of the supply. The imported flour coming chiefly from the United States of America, was of a far superior quality to the home product.

Yield of Wheat Before 1901, the land used for wheat planting averaged between 440,000 and 480,000 cho, and in 1905, it was 450,000 cho. The yield of wheat gradually increased up to 1901, when it was 4,370,000 koku, but during the next few years there was a gradual decrease until in 1905 the yield was 3,600,000 koku.

As regards imported wheat, the amount imported usually depended upon the domestic wheat crops, but showed in general a gradual increase. In 1895 imports were only 1,600 koku with a value of ¥7,500. In 1902 they had increased to 38,000 koku, valued at ¥240,000. The year 1903 proved to be a lean year for domestic wheat, and imports suddenly increased to 560,000 koku, of a value of ¥4,760,000. After that, owing to the prosperity which visited Japan after the war with Russia, wheat continued to be imported in large quantities. In 1904 it was 170,000 koku, valued at ¥1,530,000, and in 1905, 450,000 koku, valued at ¥4,000,000.

After the Russo-Japanese War Many flour mills were established on a modern basis during the time of the great boom which followed the Russo-Japanese War, and production capacity was greatly expanded, but a contraction was brought about by the closing down of many of the newly established mills when the reaction later set in. In 1914, when the World War started the capacity of production by machinery was 9,060 barrels and this, by 1922, had increased to over 20,000 barrels.

During those seven years the industry experienced unprecedented prosperity, and with this development on modern lines, domestic producers who make flour in the old-fashioned way have lost nearly all their customers and, further, imported flour has been practically shut out of the country.

The Industry at Present

Production and Imports of Wheat After 1918 the demand for wheat flour, keeping pace with the advance in the standard of living, greatly increased. The extended westernization of the country in recent years largely accounts for this and has brought about a consequent heavy demand for wheat. Home production has not increased to meet the demand, the result being, as the following tables show, heavy annual importations of wheat. An attempt, therefore, has been made by the

QUANTITIES OF WHEAT IMPORTED

Countries from which imported

Year	(Quantities in piculs)						Total
	China	Kwantung Peninsula	U.S.A.	Canada	Australia	Others	
1925	8,406	8,478	2,839,678	1,513,904	3,354,246	2,298	7,727,044
1926	—	—	3,257,855	4,177,409	4,269,521	11,563	11,716,549
1927	261,959	62,958	2,608,611	2,879,710	1,953,867	6,973	7,774,038
1928	224,974	440,452	2,439,587	6,649,680	2,402,582	74,282	12,231,557
1929	224,974	440,452	2,439,587	6,649,680	2,402,582	74,282	12,231,557
1930	204	34	3,398,999	2,957,510	1,706,306	22	8,063,078
1931	23	0	884,210	2,597,625	8,554,294	3,379	12,039,531
1932	—	0	195,634	1,983,110	10,264,635	54	12,443,434
1933	—	0	49,367	1,874,606	6,593,331	3,165	8,520,470
1934	17,820	0	2,220,803	1,325,549	4,455,025	135,864	8,155,061
1935	3,000	0	45,994	881,786	5,558,084	928,436	7,417,300

Owing to great increase of domestic production of wheat, the import of wheat from countries other than Australia decreased to a considerable extent.

The Export of Wheat Flour The export of wheat flour in 1917 was as

Government to increase domestic production through tariff and increase of wheat acreage, in which they were highly successful. The production increased very much in 1933 in proportion to the increased acreage, which was further accelerated in 1935, when an all-time record high was established as the following table shows:

PRODUCTION OF DOMESTIC WHEAT AND ITS ACREAGE AFTER 1925

Year	Production koku	Acreage cho
1925	6,121,000	468,000
1926	5,897,000	467,000
1927	6,059,000	473,000
1928	6,389,000	489,000
1929	6,523,000	494,000
1930	6,124,000	491,000
1931	6,405,000	501,000
1932	6,497,000	508,000
1933	8,013,000	616,000
1934	9,450,700	648,400
1935	9,661,000	692,100

large as 4,410,000 bags, and 2,560,000 bags in 1918, but this was only a temporary war-time phenomenon. After the latter year exports fell away sharply and it was not until 1925 that exporting on a steady basis really began.

EXPORTS OF WHEAT FLOUR

Countries to which exported

(Quantities in piculs)

Year	Manchoukuo	China	Kwantung Province	Dutch Indies	Asiatic Russia	Others	Total
1925	—	405,841	518,299	8,403	10,102	206,158	1,148,803
1926	—	907,565	653,947	48,536	4,413	78,111	1,692,572
1927	—	938,934	200,234	80,156	7,250	75,113	1,251,687
1928	—	1,763,898	536,245	24,538	23,647	24,001	2,372,329
1929	—	1,786,880	1,086,880	16,571	153,068	19,979	3,063,378
1930	—	1,337,437	378,057	21,595	229,625	32,044	1,998,758
1931	—	1,684,775	490,162	14,068	19,390	33,616	2,252,011
1932	858,103	1,049,163	2,572,327	5,998	—	27,395	3,694,883
1933	1,427,036	482,700	803,963	14,068	Phillippine	63,006	5,304,249
1934	1,402,032	17,133	2,899,819	8,988	57,297	42,104	4,427,819
1935	2,035,048	29,123	2,366,348	10,323	159,279	219,508	4,819,629

Exports in 1932 showed the highest figure up to that time, exceeding the figure of 1931 by 1,443,000 piculs. The Tsurumi Mill of the Nisshin Seifun Kaisha, Ltd., the largest mill in the Orient, was destroyed by fire in 1931. In 1933, aided by the fall in yen exchange and the Tsurumi

Mill again coming into operation, the year showed even better results than 1932. In 1934, however, the figure showed a slight decline owing to the sales by the Australian exporters at Dairen, which checked the export of Japanese flour to Manchoukuo and Kwantung Peninsula.

FLOUR PRODUCTION, CONSUMPTION, ETC.

(in bags)

Year	Production	Import	Export	Home Consumption and in stock
1923	30,098,000	921,000	470,000	30,500,000
1924	32,676,000	392,000	508,000	32,560,000
1925	36,483,000	205,000	3,101,000	33,588,000
1926	38,349,000	338,000	4,551,000	34,216,000
1927	36,701,000	897,000	3,379,000	34,220,000
1928	42,478,000	374,000	6,433,000	36,420,000
1929	43,159,000	314,000	8,271,000	35,203,000
1930	40,962,000	877,000	5,396,000	36,443,000
1931	42,088,000	258,000	6,080,000	36,266,000
1932	41,989,000	112,000	9,976,000	32,125,000
1933	41,395,892	40,246	14,321,472	26,114,666
1934	46,084,000	45,400	11,966,000	34,175,000
1935	49,700,000	100,000	13,000,000	36,800,000

Wheat Encouragement Policy

The great development of flour milling industry and the shortage of domestic supply of wheat increased the import of foreign wheat to a tremendous extent. For a long time it was studied to check the import of wheat. It was proposed later that to attain the purpose,

the best way would be to increase domestic production through increase in wheat acreage, with the goal of making Japan self-sufficient as to the supply of wheat. With this in view, when tariffs were revised in general in 1932, that on wheat was raised from ¥1.50 to ¥2.50 and that on flour from ¥2.90 to ¥4.30 per 100 kin each. Moreover, it was estimated

by the Ministry of Agriculture and Forestry that Japan's annual requirement of wheat was about 9,000,000 koku, 5,000,000 koku of which was used as flour while balance of 4,000,000 koku for brewing and other purposes. The Government, therefore, determined to increase wheat production to this figure. They encouraged rice farmers in 1932 to turn over their land to wheat production, figuring on a five year drive, and the Government's goal was reached in three years instead of five. Wheat crop amounted in 1934 to 9,450,000 koku against 8,006,000 koku of 1933, and showed an increase of 41.6 per cent. over the average of preceding five years. The acreage was 648,400 cho against 615,888 of 1933. Its increase over the average of preceding years was 24.4 per cent.

The fact that tariff was raised and Japan has become self-sufficient in wheat gives a new advantage to Japan. In the past, Japan had to buy most of wheat in foreign markets. Prices always were subject to fluctuations according to conditions in foreign markets, and it was not always convenient to hedge purchase made in this country. In fact, for many years the business of flour milling was handled as if it were a speculation and the near-failure of the Nihon Flour Company, Ltd. (in the days before the Mitsui Bussan Kaisha, Ltd. assumed control of it) was entirely due to gambling in wheat. Now this danger of speculation has been entirely wiped away from the business. Domestic wheat, most of time, is well within the tariff walls, and is not very much affected by foreign influences now.

1935 Business

The wheat crop in Japan for 1935 set an all-time record high with 9,660,000 koku, gaining 210,000 koku over 1934. In spite of this, the sup-

ply was short by about 500,000 koku. The wheat price was high, due to the reason, and retained a high price of ¥6.80 or so. The highest price was ¥8.70 in August, the high level after 1926. Domestic demand for flour for 1935 advanced by 10 per cent. over the year before. Because of a high price of Korean millet, much were shipped to Korea and the domestic consumption also gained. The flour consumption totalled 49,000,000 sacks, the largest during the last 10 years, imports of flour totalled 100,000 sacks, while exports totalled 13,000,000 sacks and the domestic demand 36,800,000 sacks, the largest for the last 10 years. The domestic production and demand have kept steadily rising since the last 10 years. The demand and supply since 1930 have been as follows:

Years	Flour output	Imports	Exports	Home demand
		(1,000 sacks)		
1930	40,962	878	5,397	36,443
1931	42,088	258	6,080	36,266
1932	41,989	112	9,376	32,725
1933	47,706	40	14,321	33,425
1934	46,084	45	11,954	34,175
1935	49,700	100	13,000	36,800

Business results of all flour mill companies were fairly good last year. Both the Nisshin Flour and Japan Flour mill companies increased their dividend rates by 2 per cent. each for the first six months. During 1935 the Showa Flour Mill Company was established and opened its business in August. This company is outside the members of the flour association and in co-operation with provincial co-operative societies is selling its flour to them at a cheap price. Naturally, this company forms a menace to the existing flour mill companies. During 1935 Japan Flour built a 1,000-barrel mill at Jinsen, Korea, and later decided to purchase two 500-barrel flour mills at Chinnampo and Shariin, both in Korea, with the

object of dominating the flour milling industry in the peninsula. It will be equipped with a total 2,000-barrel capacity in Korea alone.

Five-Year Wheat Plan The five-year wheat crop increase put into effect by the Ministry of Agriculture and Forestry in 1932, aimed at self-sufficiency in wheat supply, has shown favourable effects from the second year; and 1935 was the third year under the project. Wheat crops for the last four years were: 3,703,000 bushels for 1932; 4,567,000 bushels for 1933; 5,386,000 bushels for 1934; and 5,529,000 bushels for 1935. The 1935 crop represented a marked increase of 1,824,000 bushels as compared with the 3,703,000 bushels for 1932, in which latter year the five-year plan was started. This is a fair success, and it may be said

that the expected results of the plan have been achieved in so far as the domestic consumption of wheat is concerned. In the meantime, due to the improvement of the market conditions abroad, the world-wide poorness of agricultural crops and the intensification of tariff wars, American and Australian wheat, which had formerly been dumped on this market and which constituted a menace, disappeared from the Oriental market in July, 1934. Import wheat is used solely for the manufacture of flour for export and therefore the domestic flour market is not menaced by foreign wheat. Exports of wheat flour showed an unusual activity in recent years. Manchoukuo is the largest market for Japanese flour.

Sugar

History and Development

The art of making sugar was imported from China about two hundred years ago, but no great progress is recorded in its manufacture until after the Restoration, and even then it remained as a farmers' sideline until the end of the Sino-Japanese War of 1894-5, when Formosa, well-known for its sugar production, was ceded to Japan by China. This marked a new era in the sugar industry. In 1896, a sugar refining company was organized in Osaka and from that time the industry began to develop.

The Government undertook to levy a duty on raw sugar in 1899, and, by successive steps, this duty has reached the present rate. In 1911, a tariff of a similar nature was imposed, for the first time, on refined sugar.

In view of the fact that Formosa

is ideal both in temperature and rainfall for cane growing the Government decided to encourage the establishment of sugar mills in the Island. With this in view it established the Temporary Sugar Bureau as a branch of the Government of Formosa. The Bureau subsidized sugar companies in establishing sugar mills and purchasing required machinery. It imported cane seedlings and distributed them to cane growers. It gave, too, subsidies for the purchase of fertilizers, and in various other ways succeeded in dispensing as subsidies, up to 1924, a sum amounting to more than thirteen million yen. As the result of these subsidies, the industry has developed to the present stage. In 1902, the production of raw sugar in Formosa was only about 600,000 piculs, but by 1931 this had increased to over 13,000,000 piculs.

In 1901, the Taiwan Sugar Co.,

Ltd., was organized. Raw sugar mills with all new machines were established and war was declared against the old-fashioned machines which were only able to produce poor red sugar. Development was destined to be slow, for the plantations and mills were subject to attacks from the native savages, but this difficulty was gradually overcome and during the prosperity that visited Japan after the Russo-Japanese War, many

new companies were organized and the industry developed rapidly.

Present State of the Industry

The sugar industry in Shikoku, Kyushu, and the Loochoo Islands is making no headway, but that in Formosa, is rapidly progressing, and at present it is the Formosan sugar that controls the sugar market in Japan. Refining is making good progress in Japan proper.

PRODUCTION OF SUGAR

(Unit 1,000 piculs)

Year	Formosa	Japan Proper	Hokkaido	Korea	South Sea Islands	Total
1924-1925	7,902	1,201	167	6	148	9,516
1925-1926	8,332	1,390	190	9	152	10,083
1926-1927	6,852	1,290	286	5	209	8,653
1927-1928	9,667	1,458	343	9	181	11,640
1928-1929	13,155	1,523	343	10	164	15,197
1929-1930	13,508	1,222	424	11	345	15,511
1930-1931	13,287	1,273	361	15	642	15,580
1931-1932	16,484	1,651	405	29	696	19,266
1932-1933	10,561	1,712	402	—	729	13,406
1933-1934	10,573	1,600	383	—	745	13,409
1934-1935	16,103	1,709	587	—	1,135	19,536
1935-1936*	16,998	2,000	550	—	1,200	20,748

* Estimate

Before 1926, the total production of sugar was only about 10,000,000 piculs. But after that year production rapidly increased, and in 1934-35, it had reached over 19,536 piculs, about twice as much as six or seven years ago. The increase came chiefly from Formosa, and is due to the advance in agricultural method, viz., the planting of superior canes, prolongation of the time of planting, improvements in ploughing, etc. As the result of this increase in yield, imports of sugar

have been considerably reduced, but the balance between demand and supply has been destroyed which became the cause of anxiety for sugar industry. However, owing to restrictions placed on the output of sugar not only in Japan proper, but also in Formosa and the South Sea Mandated Islands, the output was curtailed. Moreover, import was reduced considerably so that the balance between the demand and supply was restored.

CONSUMPTION OF SUGAR

(Unit 1,000 piculs)

Year	Japan Proper	Formosa	Korea	South Sea Islands	Total
1918	7,375	410	—	—	7,785
1919	8,148	302	170	—	8,621
1920	6,722	235	149	7	7,114
1921	10,199	326	291	19	10,837

Year	Japan Proper	Formosa	Korea	South Sea Islands	Total
1922	11,280	317	175	3	11,777
1923	10,562	363	276	21	11,223
1924	11,162	351	209	58	11,781
1925	11,690	520	262	148	12,621
1926	12,674	551	315	152	13,694
1927	12,093	519	402	209	13,225
1928	13,035	651	322	181	14,191
1929	13,596	622	432	164	14,815
1930	12,949	688	340	313	14,292
1931	13,461	672	333	1	14,459
1932	14,310	671	350	1	15,332
1933	13,936	684	350	1	14,971
1934	12,147	758	—	—	—
1935	15,656	820	—	—	—

Japan's consumption of sugar showed an increase during the 1934 calendar year, reaching a figure which broke all records except that of 15,332,253 piculs set in 1932.

In the past Japan has been generally a self-supplying country, having either only a very small excess of import or export. Even 1934-1935 production, which is considered very large in Japan and is estimated to amount to 1,333,000 tons, will be only 4½ per cent. of the world total production, which is estimated at 25,165,000 tons. Her per capita consumption only slightly exceeds the international average of 22 kin per year, that in 1934 being 23.98 kin. The increase in Japanese consumption of sugar follows:

JAPANESE PER CAPITA CONSUMPTION OF SUGAR

(in kin)

Year	Annual per Capita Consumption
1912	6.22
1917	10.49
1922	19.57
1927	20.07
1928	21.27
1929	21.86
1930	20.57
1931	20.59
1932	20.59
1933	20.73
1934	23.98

Tables for exports and imports of sugar are given below. In spite of

all political troubles China has always been the best market for the Japanese production. The figures for 1932 declined abruptly, but this was due to the Manchurian Incident, and the loss of Manchuria which was itself a good market. If figures for Manchoukuo, Kwantung Peninsula and China are added together, it will be found that there has been no really great change as might otherwise seem indicated.

Imports from Java Since some of Japanese sugar companies are refiners rather than planters they buy crude sugar wherever they can get it at the lowest price. Often the Javanese sugar is more reasonable in price and hence usually the import of sugar from there. This was the situation in general until 1931. Domestic producers could not compete and had a hard time making profits, for the Javanese sugar kept entering the country at lower prices. The situation changed somewhat with the reimposition of gold embargo, which caused the decline of yen. The establishment of a new import tariff served to change the situation further. Since then the Japanese sugar was protected to a certain extent against the import, the producers were planning to curtail production. Prices soared remarkably. Plans to reduce production costs were taking effect. Per picul cost

of the leading companies dropped from ¥7 in 1931 to ¥5 in 1932, while domestic sugar quotations rose from ¥7 in October, 1931, to ¥14 in September, 1932, elevating earnings per picul from zero to between ¥8 and ¥9 a picul, and in this manner the sugar industry experienced its boom in 1933.

The boom, however, does not seem to have been destined to last long. The international over-supply of sugar, the constant threat that the Netherlands may abandon the gold standard, public criticism against the sugar companies due to recent consumption tax evasion case and the resultant public cry for the abolition of the tariff protecting sugar are all unfavourable factors for the sugar industry. These causes acted to keep raw sugar prices from going

up. Since the boom in 1933, the price has been steadily downward. It should be noted, however, that the conditions are not very bad; only forebodings for the future are keeping down prices of sugar.

SUGAR EXPORTS AND IMPORTS OF JAPAN PROPER

(Compiled by the Japan Sugar Institute)

Year	(in piculs)		Excess of imports (-) or exports (+)
	Imports	Exports	
1926	8,342,785	3,445,853	(-) 4,896,932
1927	7,932,264	3,186,722	(-) 4,745,542
1928	7,081,896	4,450,909	(-) 2,630,987
1929	4,343,394	3,769,576	(-) 573,818
1930	4,569,617	4,101,426	(-) 468,191
1931	3,505,168	3,236,023	(-) 269,145
1932	711,060	2,598,219	(+) 1,887,159
1933	2,485,343	2,750,402	(+) 265,059
1934	1,732,188	2,019,863	(+) 287,675
1935	2,341,841	2,669,420	(+) 327,579

IMPORTS OF REFINED SUGAR BY ORIGINS

Year	(in piculs)					
	Java	Philippines	Hongkong	China	Cuba	Others & Total
1915	1,664,001	324,626	4,490	8	209,373	2,077,533
1926	6,267,661	291,366	12,060	380	945,622	7,568,820
1927	5,879,517	134,416	28,344	69	936,594	7,022,826
1928	6,230,002	21,265	1,639	—	89,266	6,350,922
1929	3,673,640	7,266	—	8	112,686	3,795,231
1930	4,072,494	3,020	4	14	641	4,077,603
1931	3,304,251	10	9	—	—	3,305,275
1932	644,927	—	10	—	25,411	671,299
1933	2,184,499	—	4	—	35,348	2,210,124
1934	1,727,188	4,197	—	—	—	1,732,188
1935	2,323,100	—	3,803	—	12,173	2,341,841

EXPORTS OF REFINED SUGAR BY DESTINATION

Year	(in piculs)							
	China	Manchou-kuo	Kwantung	Soviet Union	Hongkong	British India	Others	Total
1925	2,175,020	—	189,941	20,741	2,349	—	—	2,388,051
1926	2,682,153	—	253,746	64,999	398	—	—	3,002,132
1927	2,228,913	—	229,635	149,735	22,773	—	—	2,631,057
1928	3,119,488	—	374,154	221,851	77,591	4,539	2,846	3,799,969
1929	2,379,585	—	547,469	93,854	168,130	31,259	1,140	3,220,937
1930	3,007,528	114,804	326,541	31,796	154,132	1,015	1,482	3,637,298
1931	1,895,667	88,922	370,810	57,433	208,996	353	—	2,622,211
1932	466,877	54,790	799,840	15,552	10,535	37,395	4,518	1,389,507
1933	901,525	96,703	1,015,941	81,312	15,547	41,337	19,952	2,172,317
1934	1,041,527	162,255	715,093	40,904	—	—	60,089	2,019,863
1935	1,481,800	227,300	792,500	16,780	—	—	—	2,669,213

Refined Sugar At present there are fifteen refineries in Japan proper and one in Korea. The total refining capacity is about 2,800 tons per day, so that if the average working days per year are 300, production will be about 14,229,600 piculs a year. Against this only a little over 6,900,000 piculs of refined sugar are produced, hence there exists a great surplus capacity.

1935 Sugar Business The sugar business prospered during 1935. Pressure of foreign sugar to bear upon Japanese sugar was not visible. The production for the year totalled 19,500,000 piculs, gaining 6,000,000 piculs over the year before. This was caused by the increase of Formosan centrifugal sugar by 5,000,000 piculs to 15,700,000 piculs. The gain in the production of sugar in the Hokkaido and others also was responsible. The domestic demand of sugar has been active since several years ago. Over-production observed at one time was the result of increase of Formosan sugar to unnecessarily large extent. The

subsequent production curtailment made by Formosan companies resulted in less stocks. Exports to Manchoukuo increased, but no export activity in foreign countries has yet been realized. Profits of various manufacturing companies increased, affected by the satisfactory business. The average profit rate for the first six months was 2.61 per cent. and that for the second six months 3.43 per cent. Their total profits for the first six months was ¥20,478,000 to the total paid-up capitalization of ¥156,612,000 and that for the second six months was ¥26,909,000 to the same paid-up capitalization. The average dividend rate for the first six months was 9.6 per cent. per annum and that for the second six was 10.9 per cent. Due to an intervention of the Finance Ministry, sugar companies are not in a position to increase their dividend rates as they please. Profit they realized is thus devoted to reserves and depreciation and naturally their business status is getting better.

DOMESTIC PRODUCTION

Kinds	(in 1,000 piculs.)			
	1931-32	1932-33	1933-34	1934-35
Taiwan centrifugals	16,287	10,280	10,373	16,103
.. red sugar	196	281	209	—
South Sea Islands centrifugals	695	729	750	1,135
Loochoo ..	263	323	268	1,395
Loochoo black, and white lower grade	1,023	1,051	908	
Daito ..	185	71	96	84
Others	233	263	250	230
Beet sugar (Korea)	29	—	—	—
.. .. (Hokkaido)	405	402	333	587
Total	19,266	13,406	13,437	19,536

Various Sugar Companies

The following table shows capacities, standings, etc., of the principal

sugar companies in Japan as of March, 1934:

CAPITAL, CAPACITIES, ETC., OF SUGAR COMPANIES

At the end of March, 1935

Company	Capital		Capacity		Production of Sugar 1934
	Authorized	Paid-up	Raw sugar	Refined sugar	
	in yen	in yen	in long ton	long ton	pls.
Taiwan Seito Co., Ltd.	63,000,000	43,080,000	10,548	430	2,864,008
Dai-Nippon Sugar Co., Ltd.	51,416,600	45,779,100	8,320	910	2,363,473
Melji Seito Co., Ltd.	48,000,000	39,200,000	7,520	450	1,706,423
Ensuiko Seito Co., Ltd.	29,250,000	17,457,500	5,250	400	1,635,700
Nitaka Seito Co., Ltd.	28,000,000	14,200,000	2,932	80	505,471
Teikoku Seito Co., Ltd.	18,000,000	16,200,000	2,888	—	314,943
Hokkaido Seito Co., Ltd.	4,700,000	3,700,000	—	—	220,820

Brewing

Beer

Historical Beer was brewed in Japan about 80 years ago by a certain scholar, Mr. Ko Kawamoto, who, as he learned how to brew it when he visited Admiral Perry's fleet, on the latter's visit to Japan, tried to brew on his own private account. In 1870, beer was brewed for the first time on a modern industrial basis by an American, Mr. Gobland, in Amanuma, Yokohama. Four years later, Marquis K. Kuroda saw that the soil of Hokkaido was particularly suitable for barley, so he established a brewery in Sapporo, and soon others were built in Meguro, Tokyo, in Suita, Osaka, in Hodogaya, Yokohama, and other places, and the industry has so developed that at present Japan has six beer brewery companies and fourteen breweries with a total capacity of about 1,500,000 koku.

Production and Consumption In order to show how this industry has developed in Japan we give below figures of beer brewed during the last two decades.

Year	Production of beer (in koku)
1915	248,818
1918	511,525
1921	656,174
1923	805,905

Year	Production of beer (in koku)
1926	767,533
1927	795,335
1928	904,377
1929	895,945
1930	846,914
1931	797,544
1932	797,283
1933	959,762
1934	970,494
1935	1,049,000

Consumption of beer in 1912 was only 3.25 go (one go is equivalent to 0.18039 hl., about one-third of a pint) per head, but this had increased to 10.16 go in 1923 and to 13.53 go in 1929.

As regards the capacities of different breweries, five of them brew more than 150,000 koku, 3 over 100,000 koku and 2 over 30,000 koku per year.

Though any hasty conclusion cannot be made, since the number of breweries is very small, it is presumed that in future a capacity of at least 100,000 koku should be made a unit for any establishment. The brewing of beer differs from the brewing of Japanese saké in that it does not require much personal skill. It can be brewed on a large scale in a mechanical way, and as the brewing is done in this country in the German style, it requires large mechanical equipment, hence,

large capital. Judging from the past, the brewing of beer in Japan will in future be carried out on a very large scale.

The Japanese taste for beer originated in the taste for saké. Originally, people who were used to the Japanese liquor shifted their taste from saké to beer, or, drank both. Nowadays, beer has become so popular that the people go to it without the agency of saké, and this tendency will be accelerated in the future. In recent years the mode of living of the Japanese has been westernized to a very great extent, and especially with improvements in the heating arrangements of houses and the extreme westernization of food has the taste of the people for beer been intensified. Moreover, with the advance of knowledge about hygiene, the middle-class people seem to give a preference to beer, which contains a smaller percentage of alcohol than saké.

Japan as Beer Consuming Country In spite of the increase in consumption, Japan still occupies an insignificant position as beer producer and consumer in the world. Her

production of about 1,000,000 koku in 1933 stands at the fourteenth in the list of beer producing countries with the U.S.A.'s 27,000,000 koku as the first. Also her per capita consumption of 2.77 litres was the twenty-eighth in the list of beer consumers with Belgium's 176.46 litres at the head. This is easy to explain. Most of her people take saké, the production of which is about 4.5 times as large as beer. Saké is the standard of drink, only a very small quantity of which is enough for average man. In other countries, beer is a staple, an article of food. But in Japan it is something of luxury, reserved for the people of middle and upper classes. A bottle of beer, which contains about one-fifth of a gallon of beer, sells about at 50 or 60 sen, which is too high for average Japanese farmers or wage-earners. If the Japanese of these classes take as much beer as the Belgians do they would spend greater portion of their income on beer.

Exports and Imports Exports of beer in recent years follow:

EXPORTS OF BEER

(Quantity in koku and value in ¥1,000)

Destination	1932		1933		1934		1935	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Manchoukuo	5,476	383	15,988	966	21,937	993	29,160	—
Kwantung	20,542	1,509	37,944	2,240	48,874	2,160	50,780	—
China	16,043	1,171	12,647	758	11,670	587	11,792	—
Hongkong	1,610	121	1,576	94	2,188	103	2,302	—
British India	7510,3	694	16,255	901	11,176	528	14,167	—
Straits Strmts	1,292	96	1,317	73	2,033	92	2,444	—
Dutch India	8,856	535	29,944	1,639	4,209	225	3,669	—
Others and total	68,812	4,835	132,373	7,684	118,009	5,535	135,107	5,870

In spite of the fact that beer which was exported has been exempt from brewing tax since 1912, the export has not been very encouraging. During the Great War, export temporarily increased, due to England

and Germany having neglected their Oriental markets, but with the return of peace their attention was again directed toward the East and Japan's export there fell off with it. Since then the export fluctuated between

23,000 and 53,000 koku. The decline of yen has given the export business an importance it never had before, and in 1933 the export totalled 68,812 koku, the largest since 1918. In 1933 the export amounted to 132,373 koku, valued at ¥7,684,000. Relegation in the U.S.A. gave a great spur, the export to that country including Hawaii amounting to ¥537,000. But the export to America proved but temporary; it sharply fell off in 1934. As a whole the 1934 export showed a slight decline as compared with 1933, which was due to the smaller British India and the Dutch East Indian markets. In the latter the Government took steps to end imports from Japan, which reduced the export to that country drastically. On the other hand, exports to Manchoukuo and Kwantung Peninsula increased, so far the latter proving as the best market for Japanese beer abroad. Demand in Manchoukuo is steadily gaining, but owing to the establishment of the Manchurian Beer Company, Ltd. export to that country is bound to decrease in future.

Production Capacity Production capacity of breweries was 1,090,000 koku in 1922, which steadily expanded. The increase of capacity was especially marked after the Great Earthquake of 1923, and consumption of beer could not keep pace with it. It increased to 1,700,000 koku in 1931, while actual production was barely 740,000 koku, and it was further increased up to 1,830,000 koku. When the industry was in chaotic conditions during the time of depression, which was made worse by the competition among brewers, this over-expanded capacity proved a great weakness of the industry. The production was curtailed then to the extent of 55 per cent.

Production of Raw Materials The

principal raw commodity for brewing beer is barley. This, until recently, was mostly imported, but at present it is being grown in various parts of the country through the brewers making contract with village and town agricultural associations. In this manner about 300,000 koku, which is about the quantity required by the brewers, is being produced annually, and as most of the breweries have their own equipment for converting the barley into malt the necessity of importing either of these materials is obviated. However, the quantity of barley now raised yearly may prove insufficient if the demand for beer increases to any great extent and supplies will then have to be obtained from abroad.

Another important raw material is hops. Though several attempts have been made at different times to grow them in this country the yield has always been very small, and reliance has to be placed on foreign supplies.

The Beer Industry in 1935 In 1935 the beer sales and exports set an all-time record high each. The sales amounted to 1,049,000 koku, gaining 79,000 koku, or 8.1 per cent. over the year before. Exports also advanced. The 1935 exports totalled 135,000 koku, valued at ¥5,870,000, having established a record high. Another noteworthy matter is the expansion of Japanese beer companies to Manchoukuo and Korea. The Korea Brewery Company, a subsidiary of the Dai Nippon Brewery Company, and the Showa Kirin Beer Company, affiliated with the Kirin Beer Company, doubly increased their capacities. The Manchuria Brewery Company was about to do the same during the same year. The 1936 beer production is generally estimated to reach 1,150,000 koku. By the organization of the Hirota Cabi-

net in March, 1936 the beer brewing tax is believed to be increased. The beer brewing capacity remained unchanged for several years after 1927, but the 1935 capacity was increased to 1,800,000 koku, gaining 130,000 koku over the capacity before the replacement of the gold embargo in 1931. This was due to the establishment of brewery factories in Korea and Manchuria. Dai Nippon Brewery erected Korea Brewery at Yeitoho in the suburb of Seoul with a capitalization of ¥6,000,000, of which ¥1,500,000 was paid up, and Kirin Beer established Showa Kirin Brewery at the same place with a capitalization of ¥3,000,000, of which ¥1,200,000 was paid up. Each company has a capacity of 10,000 boxes, or 17,000 koku, a year. Brewing was started in 1934. Dai Nippon and Kirin also founded the Manchuria Brewery Company with a capitalization of ¥2,000,000, fully paid up, in Mukden under their joint investment. Its capacity is 100,000 boxes, or 17,000 koku, a year. Work of construction started last year.

Beer sales for 1935 were the highest known so far. The amount totalled 1,049,000 koku, gaining 79,000 koku, or 8.1 per cent., over 1934. Previously, 1933 was the only year, when the sales went over one million koku to 1,004,692 koku, but, was not a very great increase over 1924, when the amount was 915,073 koku. Exports of beer were pronounced last year, breaking the previous records, but the export value was the highest in 1933, as seen below:

	Export quantity (koku)	Export value (yen)
1929	39,156	3,755
1930	33,634	3,439
1931	36,637	3,034
1932	68,812	4,835
1933	132,373	7,684
1934	118,009	5,535
1935	135,107	5,870

The Kwantung Leased Territory is the largest consumer, Manchoukuo is the second largest and British India is the good third. China also consumes a fairly large amount. Details follow:

	1935 (In koku)	1934	1933
Manchoukuo	29,160	21,937	15,988
Kwantung	50,780	48,874	37,944
China	11,792	11,670	12,647
Hongkong	2,303	2,188	1,676
British India	14,167	11,176	16,255
Strait Settlements	2,444	2,033	1,317
Dutch East Indies	3,663	4,209	29,944
Others	20,792	15,922	16,602
Total	135,107	118,009	132,373

Sales are controlled by the joint sales company. Exports also are controlled on co-operation of the brewery companies, exporters and wholesalers who established the Teikoku Beer Export Guild. Business conditions of all brewery companies for 1935 were very good. The profit rate of Dai Nippon for the first half of 1935 was 23 per cent. and for the second half 20 per cent. and that of Kirin Beer for the first half was 39 per cent. and for the second half 42 per cent. Business results of the two companies for the last 14 terms follows:

	Dai Nippon		Kirin	
	Profit rate	Dividend rate	Profit rate	Dividend rate
1st h. 1929	23.8	16.0	47.5	15.0
2nd h. 1929	20.5	15.0	44.2	15.0
1st h. 1930	22.2	13.0	43.5	15.0
2nd h. 1930	17.8	12.0	34.1	15.0
1st h. 1931	17.6	12.0	31.6	12.0
2nd h. 1931	15.8	12.0	22.7	10.0
1st h. 1932	17.5	12.0	28.9	10.0
2nd h. 1932	15.3	12.0	25.2	10.0
1st h. 1933	17.9	12.0	37.1	10.0
2nd h. 1933	15.6	12.0	29.2	10.0
1st h. 1934	20.0	12.0	30.0	10.0
2nd h. 1934	20.1	12.0	40.5	10.0
1st h. 1935	23.0	12.0	39.0	10.0
2nd h. 1935	20.0	12.0	42.0	10.0

Japanese Saké

History Japanese saké, brewed from rice, has been the principal alcoholic liquor of the Japanese from olden times. It is brewed everywhere in the country, but the most famous places are the "Nada Gogo," five villages in Hyogo prefecture, the climatic conditions of which are peculiarly suited for its production. In recent years, Hiroshima and Fukuoka prefectures have also begun to brew saké of superior grade. The best rice for saké brewing is raised in Kumamoto, Hyogo and Okayama prefectures.

As saké has been the chief drink of the people for many centuries it has been heavily taxed all along. In 1879, a tax of ¥2 per koku was levied and since then the rate has been gradually increased until it now amounts to ¥40 per koku and brings in an annual revenue to the Government of ¥200,000,000.

No study of brewing saké on a scientific basis was started until as late as 1895. In 1904, a Brewery Experimental Station was established by the Government, at Oji, a suburb of Tokyo, various experiments were made, and many good experts trained. The art of brewing has now advanced a great deal and the quality of saké brewed has become practically uniform. The quantity now brewed annually is about 5,000,000 koku, nearly all of which is consumed at home, only a negligibly small quantity being exported to China and several other countries.

Present Condition Production of saké in recent years is as follows:

Year	Production (hectolitres)	Value in yen
1925	10,454,276	322,481,958
1926	10,460,587	313,419,561
1927	9,812,816	298,733,816
1928	9,305,899	293,386,838
1929	9,608,146	301,716,100

Year	Production (hectolitres)	Value in yen
1930	8,676,989	275,599,808
1931	7,435,560	233,122,238
1932	6,908,842	269,215,847
1933	7,289,788	307,177,000
1935	8,382,023	290,305,311*

* Note: Value does not include that for the second class of saké.

The peculiarity of brewing saké is that large quantities of raw materials cannot be fermented at once. According to the growth of saccharomyces saké, steamed rice, yeast, and water are gradually added and fermentation is brought about slowly. If this method is adopted, with only a very small quantity of saccharomyces saké a large amount of raw materials may be fermented and saké of good flavour may be brewed. If, on the other hand, a large quantity of raw materials is fermented at one time by using a great deal of saccharomyces saké, the resultant saké will not taste good.

Consumption of Saké Nothing is more directly affected by prosperity or depression than the consumption of saké, and it can be quite well understood that consumption, owing to the economic depression, has considerably decreased during the last few years. The farming districts are now feeling the depression very severely, and as saké is consumed more in rural than in urban districts, the saké brewers have suffered in proportion.

Saké Brewery in Manchoukuo Plans were under consideration to establish saké brewery in Manchoukuo, which materialized in 1934. The brewers of "Kiku-Masamuné" of Nada, near Kobé, established a company there, which has a capacity of 1,500 koku a year of saké newly branded "Manshu-Kiku-Masamuné", while the brewers of "Hakkaku" also established one with the same capacity, the saké newly brewed by

this company being branded "Kinkaku". Both began brewing on November 15.

Soft Drinks

As Japan is geologically blessed with mineral springs, the people were not slow to study their medicinal effects, and hot springs were used as baths from olden times. As to the utilization of mineral spring water for drinking purposes, mineral water from Rokko Mountain in Hyogo prefecture was the first of its kind that was put on the market. This was as late as 1883, and the drink was named "Mitsuya Hiranosui". Three years later, some Englishmen taught the making of artificially aerated water and with the importation of Codd's bottles and syphon-bottles the manufacture of sweetened aerated water originated.

These drinks soon became very popular and the industry made rapid development. After the Russo-Japanese War, "Champion" cider was put on the market to be soon followed by lemonade, citron, and different kinds of syrup, etc.

At present the total production of soft drinks amounts to 710,000 koku a year, of which sweetened drinks accounts for 93%, the rest being ordinary unflavoured aerated water or soda-water. Producers of soft drinks may be roughly divided into two classes. The first of these is composed of those who manufacture the drinks along with beer. These have good equipment and produce on a large scale. The second class is made up of those many who produce on a small scale and sell their products locally.

PRODUCTION OF SOFT DRINKS

(in Yen)

	Cider	Ramune	Syrup	Others	Total
1930	7,912,541	2,296,451	1,108,003	6,059,871	17,376,866
1931	8,509,936	1,803,975	970,528	2,668,945	13,953,384
1932	6,976,626	1,676,215	1,073,595	3,721,403	13,447,839
1933	14,132,015	1,424,789	1,182,207	2,950,569	19,689,580
1934	7,801,890	1,600,975	1,848,819	5,495,852	16,747,536

CONSUMPTION OF SOFT DRINKS

(Import included)

	Lemonade, etc.	Cider	Soda water, etc.	Others and Total
1932 (in litre)	22,954,172	73,047,750	7,119,783	161,213,950
1933	24,152,273	53,684,554	7,384,382	129,667,486
1934	22,728,171	53,705,621	7,334,329	142,736,001

Soft drinks which are now selling in Japan can be classified from the standpoint of water and gas used into the following:

(1) Those manufactured of natural spring water and natural carbonic acid.

(2) Those manufactured of natural spring water and artificial carbonic acid.

(3) Those manufactured of filtered or well-water and artificial carbonic acid gas.

Canning

Introduction

The canning industry in Japan was started as early as 1870, but the real impetus to its development was given by the Sino-Japanese and the Russo-Japanese Wars as they created a great demand for canned provisions for the Army and Navy. The Treaty of Portsmouth also served to further encourage this industry by giving Japan fishing rights in Kamchatka and the Maritime Province of Siberia, and together with the development of can manufacturing and floating canneries, the above have been the cause of the great progress in the canning industry as a whole.

Present Conditions of the Industry

At present, the packing industry in Japan is in a fairly developed state in all of its branches. Canned meats have reached a stage where the quantity of production cannot be increased. The demand for meat in Japan has expanded so far that supply cannot keep pace with demand, a shortage of cattle is being felt and a plentiful supply for canning is not forthcoming. On the

other hand, canned vegetables, such as canned bamboo shoots, are finding good markets in the U. S. A. and China. Of all the fruits procurable in cans pineapples are the most popular with the Japanese. They are produced in Formosa, and of the 450,000 cases or more that are packed in that island about 400,000 cases are consumed in Japan proper while a greater part of the balance is sold in Formosa, and only a few thousand cases are exported to foreign countries. As to canned fish and shellfish, the production of canned crab and salmon dominates all others. In no other places are canned crabs produced in such large quantities as in Japan, and most of this production is exported to the U. S. A., annual exports being valued at about ¥10,000,000. Red and silver salmon are finding a good market in Great Britain. In view of the fact that catches of salmon on the coast of the U. S. A. and Canada are decreasing the exportation of canned salmon is expected to increase, as also is the exportation of crab-meat, for the demand for it in the U. S. A. is increasing steadily.

PRODUCTION OF CANNED PROVISIONS

IN 1934

Kinds	Quantity	Value
Canned meats	1,861,096 kg.	¥ 1,986,604
Canned fishes	39,936,500	22,561,174
" fruit	6,572,153	2,819,074
" vegetable	8,440,297	3,668,622
Other canned food	46,916,366	12,373,211
Total	103,726,412	43,408,685

The exports of canned provisions from Japan for 1935 amounted to ¥57,129,000, showing an increase of ¥6,825,000 over 1933. The low exchange rate was a potent factor to

have caused the heavy gain in exports. Of the exports, ¥16,813,000 was for the United States ;¥20,488,000 for the United Kingdom.

Exports of canned and bottled

provisions were very heavy in 1935. This was partly due to active shipments of canned tomato-sardines to the South Sea countries, South America and British India. Until 1931 annual exports of these were only about 30,000 boxes, but in 1932 they gained to 160,000 boxes and to 300,000 boxes the following year. Exports totalled 520,000 boxes in 1934 and reached a pinnacle of 700,000 boxes for 1935.

Japanese goods have now completely ousted American goods in these countries. This has given rise to severe competition among Japanese makers and exporters. Surplus production and the inferior quality are troubling the trade.

Alive to the fact that the canned

tomato-sardine industry is doomed to ruin if the situation is allowed to go on unremedied, the Ministry of Agriculture and Forestry has applied the Export Marine Product Control Law to these articles and had the Japan Export Sardine Marine Product Guild manage export testing.

As the measure is still inadequate to meet the situation, the same Ministry has ordered the guild to curtail production. The guild will order curtailment for the 110 tomato sardine manufacturers in this country. A joint sales company will be established with a capitalization of ¥2,000,000 and this company will monopolize the export business. All exports will be sold to exporters by this company.

CHAPTER XXII

MISCELLANEOUS INDUSTRIES

Paper, Cement, Ceramics, etc.

Paper

Historical and General

Paper-making in Japan remained a handicraft for over twelve centuries after a Korean priest, Doncho, introduced the technique in 610 A. D. (Some writers maintain that paper existed in this country prior to that date.) During this long period of time, various grades of paper were produced from fibres of certain shrubs such as "kozo¹," "mitsumata²," "gampi³," etc.

Foreign-style paper was made for the first time in the 7th year of Meiji, 1874, in a small mill in Yukosha, Tokyo, through the assistance of an English engineer. Several more mills were established the following year, but the development of the industry was naturally slow on account of the small demand. In the beginning, the raw materials used for foreign-style paper were chiefly rags, but in 1889, wood pulp was used for the first time in a mill which belonged to the Oji Paper Mills, Ltd. At first, the smallness of quantity required and competition from abroad made it that the industry had a very severe struggle, but as with all other industries, the wars with China in 1894-95 and with Russia in 1904-5 gave it a great chance of development. In 1910, the Tomakomai Mill of the Oji Paper Mills, Ltd., which

had been under construction since 1906 began operation. This was the turning point in the history of our paper-making industry, as Japan began to operate a mill in a place where she could get ample supplies of wood for pulp. With the establishment of the Tomakomai Mill Japan became self-supplying with respect to newsprint. Again, the Oji Paper Mills, Ltd., took the initiative in establishing a pulp mill, in 1912, in Otomari, Saghalien Island, but was quickly followed by the Fuji Paper Mills, Ltd., and the Karafuto Industrial Co., Ltd. The industry was just getting well settled when the Great War broke out and prosperity was forced upon it. Importations of foreign-style paper was practically stopped. Demand at home advanced, exports increased and the industry expanded at a great speed. The production of foreign-style paper in 1881 was only 3,968,000 lbs., it increased to 327,614,000 lbs. in 1914, 519,141,000 lbs. in 1919, 817,383,000 lbs. in 1924, and 1,418,187,000 lbs. in 1929.

In 1932 the Oji Paper Mills, Fuji Paper Mills and Karafuto Industrial Company were merged into one firm under the name of the Oji Seishi Kabushiki Kaisha (Oji Paper Manufacturing Company, Ltd.). It has a subscribed capital of ¥149,988,000, of which ¥112,661,475 is paid up, and is virtually monopolistic having control over 80% of the total paper production in the country and pro-

ducing about 85% of the total foreign-style paper. The real strength of the Oji Paper Manufacturing Co., Ltd. lies in its almost complete monopoly of pulp production. In 1933 it turned out 590,000 tons, which was equivalent to 95.2 per cent. of domestic production.

Production

The paper-making business in Japan was carried on for a long time as a side-line or cottage industry, and even to-day there are numerous families in local districts which are engaged in Japanese paper making. Foreign-style papers are produced on a modern industrial basis. Nine large companies form the Nihon Seishi Rengokai (The Paper-Makers' Association of Japan). They are the Oji Paper Manufacturing Company, Ltd., Mitsubishi Paper Mills, Ltd., Hokuetsu Paper Mills, Ltd., Nihon Paper Industry Co., Ltd., Inui Paper Mills, Ltd., Nihon Paper Mills, Ltd., Nishino Paper Manufacturing Plant, Showa Co., and Asahi Co. These companies together produce 98% of the foreign-style paper in Japan. The chief functions of this organization at present are to make agreements for the limita-

tion of production, for the joint control of stocked paper and for the maintenance of selling prices. Four of the member companies produce pulp in addition to paper, and the largest company, Oji, produces newsprint, the production of which is so large that they practically supply all domestic requirements, only a very small quantity being imported.

Production as well as sales broke previous records of 1,418,187,000 pounds and 1,379,231,000 pounds respectively in 1929. The chief cause for rise in volume of output and sales was a lifting of pressure from import paper because of a decline in the yen's exchange rate.

In 1930, the consumption of paper was reduced to an alarming degree and as a measure to dispose of surplus products, the Nihon Seishi Rengokai agreed to reduce production. During 1931, the curtailment was 35% from January to August, 45% from September to November, and 55% in December. The production of cardboard was also curtailed by 45%. In this manner, production in 1931 was reduced by 37,000,000 lbs. or 2.7% as compared with the previous year. The figures in the following tables show production since 1924.

PRODUCTION OF PAPER SINCE 1925

(Quantity in 1,000 kg. and value in ¥ 1,000)

Year	Printing paper		Copying paper		Drawing paper		Wrapping paper	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1925	351,983	97,992	10,060		4,178		9,922	2,534
1926	366,572	98,835	3,943		1,869		12,649	2,867
1927	347,800	86,699	3,975		1,557		20,799	5,083
1928	355,056	90,172	4,331		1,411		17,704	4,007
1929	366,709	87,745	3,532	1,205	3,899	1,361	10,662	2,800
1930	369,523	74,055	4,661	1,587	731	243	14,557	2,559
1931	321,711	62,416	3,360	1,120	4,074	1,137	9,567	1,839
1932	217,196	54,566	2,366	818	3,374	1,127	22,655	4,369
1933	346,594	68,705	23,563	5,354	3,342	1,462	27,696	6,300
1934	379,062	84,107	11,684	4,216	3,402	1,980	39,180	10,327

¹ Paper mulberry. ² Golden flowered Edgeworthia (*Edgeworthia chrysantha*). ³ An indigenous plant (*Wikstroemia sikokiana*).

Year	Match paper		Cigarette paper		Art paper		"Hanshi"	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1925	2,753	841	2,515	554	—	—	2,258	6,496
1926	2,299	815	6,625	5,285	—	—	970	6,804
1927	1,964	560	7,378	5,186	—	—	2,319	8,073
1928	1,636	579	7,392	4,192	—	—	2,149	4,752
1929	732	212	7,564	7,382	12,821	5,949	6,927	11,640
1930	1,005	247	6,679	5,077	6,348	2,823	4,585	6,084
1931	812	176	4,210	2,452	8,959	3,703	4,394	5,349
1932	2,088	414	3,655	2,641	8,883	3,367	3,122	5,654
1933	1,952	501	7,656	4,633	10,961	4,075	1,347	5,091
1934	2,787	711	5,658	4,410	15,091	5,655	2,838	6,924

Year	"Minogami"		"Torinoko," and imitation paper		Board		Others and total	
	Quantity	Value	Value	Quantity	Value	Value	Value	
1925	422	2,338	2,463	110,146	12,347	164,695	164,695	
1926	269	1,932	4,842	114,962	14,151	179,630	179,630	
1927	362	1,522	5,301	113,178	15,700	175,318	175,318	
1928	194	883	7,278	135,149	17,194	182,476	182,476	
1929	178	1,048	7,585	162,353	19,476	190,635	190,635	
1930	128	845	4,368	150,215	15,469	154,574	154,574	
1931	143	776	5,088	146,863	11,414	134,095	134,095	
1932	168	954	7,120	139,253	11,646	132,170	132,170	
1933	163	638	4,442	178,151	16,337	168,473	168,473	
1934	305	1,010	4,174	198,502	20,079	200,923	200,923	

Cellophane

The monthly output of the Japanese cellophane industry, which has grown considerably within recent years, is approximately 6,000 reams produced by 11 manufacturing concerns, such as Nippon Cellophane, Tokyo Cellophane, Takasaki Cellophane, Fuji Glyphane and others. Ever since 1932 importing of the French product into Japan has been checked. Thus, the country's cellophane industry, having become self-sufficient, is today exporting this domestic product and the line is one of the most promising in the land. Cellophane exportation has been conducted since January, 1934. Orders keep coming from British India, the Straits Settlements, Hongkong and other points abroad. India is considered as an exceptionally worthwhile market for the product. Having become encouraged, many cellophane producers are expanding

their products. The 1933 production reached 574,029 kg. valued at ¥2,000,000. This industry in Japan may outdistance the corresponding French industry, and places its products on the markets of various European countries. Cellophane was first imported into about 1923, but in the following year Japanese found how to manufacture it. The Tokyo Cellophane Company started the operation and then several other companies followed suit. Both imports and exports are hardly worth mentioning in quantity and value. Its production since 1929 rapidly expanded as the following table shows:

PRODUCTION OF CELLOPHANE

Year	Production	
	Qty in kg.	Value in yen
1929	16,875	86,400
1930	—	85,400
1931	64,575	176,170
1932	147,000	473,634
1933	574,029	2,008,057
1934	725,842	3,414,539

Consumption of Paper

Foreign-Style Paper Looking at the figures of paper consumption, we find that until 1929 it kept increasing, but in the following year it decreased somewhat owing to the world-wide economic depression. It

increased again in 1931, but we can safely presume that the stock was considerable, because imports increased considerably while exports decreased to an alarming degree. The following table indicates the trend of paper consumption during the past twelve years.

CONSUMPTION OF FOREIGN-STYLE PAPER

(Quantity in 1,000 lbs.)

Year	Production	Imports	Exports	Consumption	Consumption per capita
1924	893,249	175,384	77,164	991,469	16.2
1925	986,752	96,919	96,300	987,371	15.9
1926	1,106,788	137,622	86,462	1,157,947	18.4
1927	1,191,074	112,555	92,484	1,211,245	18.9
1928	1,313,479	102,863	134,035	1,312,307	20.2
1929	1,451,526	81,084	140,289	1,392,321	21.1
1930	1,401,711	100,160	168,808	1,333,063	19.9
1931	1,374,899	147,549	141,821	1,380,627	20.4
1932	1,311,315	99,453	87,356	1,323,412	19.0
1933	1,444,104	104,330	105,200	1,480,930	21.2
1934	1,591,474	138,556	139,715	1,605,350	22.6
1935	1,719,637	167,482	199,975	1,727,551	—

Pulp Industry

Since Japan started to manufacture wood pulp in 1889, its development has kept pace with the development in the paper industry, and expansion during the time of the World War was prodigious. The industry has been in a state of depression since 1921, but in spite of that capacity of production has expanded. In the years 1930, 1931 and the early part of 1932, it was further depressed on account of the shrinkage in demand, lower prices, and competition from Canada and Scandinavia.

Production and Imports. The pecu-

liarity of paper pulp production in Japan is that there is no independent mill which produce pulp of this description, that which is produced being turned out by paper-makers, who not only produce for their own consumption, but also for the purpose of selling to other paper-makers. Most of Japanese paper-makers who do not own pulp mills, therefore, must either rely on the Japanese pulp producers for supplies of pulp, or must buy imported pulp. Tables given below show the amount of production and import of pulp, as well as the amount of lumber used for pulp production. There is hardly any export of pulp from Japan.

PRODUCTION OF PULP

(in tons)

Year	Sulphite Pulp	Ground Pulp	Kraft Pulp	Others and Total	Lumber consumed
					(in koku)
1928	310,020	237,203	20,306	567,529	7,905,854
1929	335,436	257,043	26,123	618,602	8,578,069
1930	537,151	259,984	28,402	825,537	8,426,888
1931	290,171	246,489	30,049	566,709	7,416,911
1932	277,588	241,746	31,786	551,120	6,794,149
1933	310,621	267,993	40,144	637,400	7,278,883
1934	—	—	—	710,000	7,317,000

IMPORTS OF PULP

(Qty in 100 kin and value in ¥1,000)

Country of origin	1932		1933		1934		1935
	Qty	Value	Qty	Value	Qty	Value	Value
Sweden	230,132	1,220	439,657	3,571	800,652	7,428	7,734
Norway	174,037	2,013	527,249	7,577	669,256	10,464	13,201
U.S.A.	339,845	2,418	755,276	7,801	1,415,096	16,464	22,312
Canada	829,218	5,200	788,420	6,043	679,951	7,245	5,960
Others and total	1,703,762	11,840	2,708,373	27,066	3,814,656	44,265	55,101

Demand and Supply There is scarcely any export of pulp from Japan, and domestic production plus the quantity imported can be taken as

quantity required. The following table shows the relation between demand and supply.

DEMAND AND SUPPLY OF PULPS DURING THE LAST 7 YEARS

(Unit in ton)

Year	Quantity produced	Quantity imported	Total consumption	Quantity required for paper making
1928	567,529	73,144	640,673	631,853
1929	618,602	80,410	699,012	684,612
1930	625,537	79,107	704,644	685,324
1931	566,709	100,636	667,221	641,781
1932	551,120	101,168	652,288	615,328
1933	637,400	159,974	997,343	745,143
1934	710,000	225,260	935,250	850,060

1935 Paper Industry

The paper industry in Japan for 1935 passed peacefully. If there was something worthy of note, that might have been the export development of paper. Demand and supply relations of paper for the year were very favourable. Total production for the year amounted to 1,719,000,000 pounds, gaining 128,000,000 pounds, or 8 per cent., over that for 1934. This was caused by an alleviation of production curtailment in printing paper. On the other hand, the domestic demand totalled 1,727,000,000 pounds, increasing 7.6 per cent., or 122,000,000 pounds, over the year before. The ratio of gain in the 1934 domestic demand, however, was 10.2 per cent. over 1933. Exports of paper made

a considerable recovery. The export amount for 1935 totalled 200,000,000 pounds, worth ¥23,000,000, being 16 per cent. more in the volume and 12 per cent. in the value over the year before. Still, however, they were not so much as in 1930, the record high amount. If China assumed a more pro-Japanese policy, the exports would have increased more. Prices of various kinds of foreign-style paper in Japan have been declining gradually since 1933. The paper production above referred to is the figure representing that by 11 companies associated with the Japan Paper Mill Association. Two outsiders, namely, the Tomogawa Paper Mill and Taisho Industry Works, joined the Association during the year. The production curtailment of printing paper was

alleviated and four milling machines were installed. These provided the background for the increase of production. Due to an active demand at home and abroad, the balance of warehoused goods in Japan at the end of 1935 amounted to 108,000,000 pounds, nearly a half of 200,000,000 pounds two or three years ago. China used to be the largest customer of Japanese paper, but, since the Manchurian Incident the export trade has been hit hard, due to the anti-Japanese movement. Taking advantage of the replacement of the gold embargo, the exportation to South Seas and India was encouraged. The independence of Manchoukuo and the North China situation caused Japanese paper to restore much of its lost ground in China as a whole. Imports of paper also increased. The amount for 1935 totalled 167,000,000 pounds, worth ¥14,000,000. The quantity advanced 29,000,000 pounds, or 21 per cent.,

over 1934. An excess of paper exports for the year amounted to only 32,500,000 pounds, or ¥8,400,000.

Business results of paper manufacturing companies during 1935 were satisfactory. However, since the first half of 1934 their business has been gradually declining. Especially, the business of those having no pulp making equipment has been unfavourable, due to high price of material and low price of products. The average rate of yearly gain in the domestic demand of foreign-style paper for the last 10 years has been 6.37 per cent. Such a favourable increase in spite of many great changes that have taken place in the economic circle of Japan during the period bespeaks the fact that paper is not affected very much by the general economic condition. Exports of paper were satisfactory. Last year's exports were near the past high record for 1930.

Fertilizers

In 1931 the association formed by manufacturers of chemical fertilizers, maintained a high rate of curtailment of production in order to minimize the loss resulted from the general alarming situation on industries, especially on agriculture, but the dumping of sulphate of ammonia by British and German manufacturers swept the fertilizer market and the prices of bean cake, fish guano, sulphate of ammonia, superphosphate of lime, mixed fertilizers, cyanamide, etc., slumped to destructive levels. The domestic manufacturers did everything possible in their powers to stop importations. They proposed the raising of the rate of import duty, the passing law, the establishment of a system of special permits for import and export,

and so on, but practically in vain. The price of sulphate of ammonia declined to as low as ¥60 per ton. The situation was very serious, and at last, in November, a special permit system was put into effect through a Departmental ordinance. A ministerial change took place during December and the Seiyukai Party came into power. The Government at once re-imposed the embargo on gold, exports and the stock market immediately became active, and industries, including the fertilizer industry, followed suit.

The problem of food in Japan is a serious one. The Japanese population is increasing yearly by about a million, but the amount of food produced in the country is not enough to feed them. Besides, the arable

land in the country is so small and limited that hardly any space is left to effect any further increase, and the only method left, beyond extending abroad, is to increase the yield of crops through intensive farming. For this fertilizers are necessary and the demand has steadily been increasing. The consumption of fertilizers during 1934 was valued at ¥528,761,000, of which ¥299,920,000 were self-supplied fertilizers, while ¥228,841,000's worth were bought in the market.

General Condition of the Industry

Of all the chemical fertilizers, superphosphate of lime and sulphate of ammonia are the two representative ones, and because of the largeness of their demand and supply the market trend of these two is practically the market trend of the rest.

Superphosphate of Lime The principal raw material for the manufacture of superphosphate of lime is phosphate rock. During 1930 some 570,000 tons were imported, while some 63,385 tons were produced at home, and during 1933 and 1934 imports were 703,686 and 682,546 tons respectively. This rock is imported from U. S. A., Egypt, and the South Sea Islands.

Superphosphate production has been gaining steadily and in 1934 its production was 1,126,149 m.t. valued at ¥34,771,000. Production during the past few years is reported by the Ministry of Commerce and Industry as follows:

PRODUCTION OF SUPERPHOSPHATES (In metric tons)

1929	847,204
1930	957,159
1931	862,401
1932	1,041,497
1933	1,116,573
1934	1,126,149
1935	1,146,000

Demand and supply of superphosphate for the last 10 years follow:

	Production (1,000 tons)	Exports	Consumption in Japan Proper
1926	786	38	751
1927	935	39	894
1928	926	41	884
1929	947	38	908
1930	957	35	922
1931	862	32	805
1932	1,041	81	960
1933	1,116	106	1,000
1934	1,126	121	1,004
1935 (estimates)	1,146	37	1,109

Sulphate of Ammonia The demand for sulphate of ammonia has steadily increased for years. Consumption in 1930 was 488,000 tons, in 1931 it showed a remarkable increase to 618,000 tons. Imports in 1930 were 302,905 tons (value ¥29,612,000), in 1931 they decreased to 224,148 tons and in 1932 a decrease to 119,000 tons was witnessed, value being ¥15,861,000 and ¥7,035,000 respectively. The decrease in imports was made good by the increase in domestic production, which in 1931 was 393,237 tons, while in 1932 it increased to 459,663 tons, to 471,398 tons in 1933 and to 494,350 tons in 1934. Japan, in this manner, has become self-supporting in sulphate of ammonia, and has become very uneasy regarding overproduction in the future.

In Europe and America, the International Nitrogen Conference failed to relieve various countries from the pressure of overproduction, and these countries, in 1931, tried to dump their stocks in the Orient, especially in Japan, thereby causing the price of sulphate to sharply decline.

Demand and supply of ammonium sulphate in Japan for the first 10 years follow:

	Production	Imports	Reimports (in metric ton)	Exports	Reexports	Consumption in Japan proper
1926	147,000	296,026	—	4,202	39,278	399,545
1927	176,475	250,014	—	774	40,471	385,243
1928	232,425	284,475	—	2,431	57,921	456,548
1929	234,609	380,638	—	1,858	93,488	519,921
1930	265,626	302,905	18,065	14,924	83,872	488,000
1931	393,237	224,148	53,260	11,608	41,395	617,642
1932	459,663	118,735	125,123	17,956	67,440	618,125
1933	471,398	108,449	83,722	50,061	62,244	551,264
1934	494,350	160,901	84,749	1,326	88,058	650,416
1935 (estimates)	590,000	295,500	...	11,000	...	874,500

Cyanamide While cyanamide was a fertilizer difficult to make farmers use it, they now recognize the merit of this nitrogenous fertilizer, and owing perhaps to its reasonableness in price, its consumption increased with a great stride. In 1931 its consumption was 168,448 tons, in 1932 177,632 tons, in 1933 216,525 tons, and in 1934 169,071. Production increased rapidly too. While, in 1924, it barely amounted to about 121,000 tons, it increased up to 223,409 tons in 1933, almost two times as large, although it has declined in the following years. The following table shows this:

PRODUCTION OF CYANAMIDE

(Unit in metric ton and in ¥1,000)

Year	Quantity	Value
1926	140,663	11,960
1927	120,413	10,883
1928	159,938	15,051
1929	161,157	15,066
1930	228,383	16,959
1931	168,042	8,743
1932	180,583	10,660
1933	223,409	15,159
1934	197,252	14,323
1935	190,000	—

Vegetable Fertilizers Vegetable fertilizers are many in kind. Bean cake, rape-seed cake, cotton-seed cake, rice bran, etc., come into this class of fertilizers, bean cake being the most important. Supplies and consumption for 1934 were:

SUPPLY AND DEMAND OF VEGETABLE FERTILIZERS, 1934

(in Japan Proper)

(in ton)

	Production at home	Imports	Exports	Consumption
Bean cake	233,241	646,032	3,052	978,277
Rape-seed cake	90,887	35,215	—	104,708
Cotton-seed cake	30,533	84,158	—	118,220

The domestic production of bean cake is very small when compared with the quantity imported, the greater part of which comes from Manchoukuo. In 1912 the consumption of bean cake, rape-seed cake, and cotton-seed cake was 34,640 tons, which, by 1921, increased to over a million tons, but since then no increase can be noted as the development of the synthetic nitrogen industry has cut deeply into

the development of vegetable fertilizer industry.

Fish and Animal Fertilizers In Japan fish is indispensable as food, but at the same time they are caught for oil extraction and the refuse is converted into manure. The consumption of fish and animal fertilizers is as shown in the tables attached at the end of this article. (See Chapter XV.)

In addition to chemical, vegetable

and animal fertilizers, a great quantity of self-supplied fertilizers are supplied and consumed, the figures for which are given also in statistics attached at the end of this subject.

1935 Fertilizer Industry

The year 1935 added another page to the advancement of fertilizer industry which was very pronounced in 1934, while the preceding two years 1933 and 1932 were the period of restoration of the industry. Last year the supply was otherwise. Neither increased production nor business establishment was realized. Demand was unexpectedly heavy. This necessitated Japan to import a large amount of ammonium sulphate. The price of this fertilizer was the highest after the replacement of the gold embargo. This was the result of anticipation of boom in agricultural villages. Superphosphate also went up in sympathy to the pinnacle after 1929. Production of all kinds of fertilizer for 1935 gained considerably, especially that of ammonium sulphate gained to 961,000 metric tons, increasing 160,000 metric tons, or 20 per cent., over 1934. The amount did not include products of the Manchuria Chemical Company, Dairen. If its production is added, the total will be 1,060,000 metric tons. As

the supply fell short of the demand, however, foreign products were imported. Production of superphosphate totalled 1,270,000 metric tons, gaining 190,000 metric tons. Both exports and imports for 1935 dropped. In exports fish meal dropped and in imports soy bean cake declined considerably. Bean cake was outshadowed by ammonium sulphate and this tendency will be more pronounced. Imports of ammonium sulphate totalled 238,000 tons. The year 1935 may have marked the height of business for fertilizer, as a turn for the worse is anticipated to come. Exports and imports of principal fertilizers for 1935 follow:

	Exports (metric tons)	Imports
Bean cake	2,431	431,977
Oil cake	35,706	107,981
Ammonium sulphate	5,992	238,596
Bone dust	—	29,631
Superphosphate	29,240	—
Calcium cyanide	1,675	—
Other synthetic fertilizer	11,827	—
Fish meal	55,631	—
Others and Total	143,791	844,419
Total for 1934	170,901	976,270

Statistics

The value of production and consumption of various kinds of fertilizers are to be found in the following tables:

THE VALUE OF FERTILIZERS PRODUCED IN JAPAN PROPER 1925-1934

(Unit ¥1,000)

Year	Fertilizers which requires a licence for production					Fertilizer not requiring any licence for production	Total
	Animal	Vegetable	Chemical	Mixed	Miscellaneous		
1925	26,500	41,660	64,380	45,940	170	26,000	204,670
1926	24,010	46,560	69,710	42,990	200	26,000	209,470
1927	21,139	37,039	70,423	41,820	165	26,000	196,585
1928	22,254	39,667	82,483	53,112	318	26,000	223,834
1929	19,619	43,521	87,284	60,116	217	26,000	236,757
1930	12,703	30,061	76,953	38,551	62	26,000	194,272
1931	13,092	24,083	61,557	25,910	85	26,000	150,727
1932	19,678	25,806	81,798	30,659	48	26,000	193,989
1933	25,891	31,563	102,026	42,408	48	26,000	227,936
1934	30,026	33,338	109,867	42,812	87	26,000	242,130

CONSUMPTION OF FERTILIZERS IN JAPAN PROPER (unit in ¥1,000)

Year	Manufactured under license	Fertilizers sold on the market			Total	Self-supplied fertilizers	Grand total
		Manuf'd without license	Quantity imported	Raw materials for mfg. fertilizers			
1925	178,670	26,000	155,882	50,897	309,655	342,810	652,465
1926	183,400	26,000	190,914	60,760	339,624	339,520	679,144
1927	170,585	26,000	150,754	57,520	289,819	934,740	624,559
1928	197,834	26,000	141,296	69,824	295,306	326,290	621,596
1929	210,750	26,000	156,597	77,265	316,089	334,250	650,339
1930	158,330	26,000	110,393	50,508	244,215	282,470	526,685
1931	124,727	26,000	74,028	39,437	185,318	251,280	436,598
1932	157,989	26,000	56,690	44,907	195,772	260,270	456,042
1933	201,936	26,000	57,824	62,936	222,824	297,900	520,724
1934	216,130	26,000	58,320	71,609	229,841	299,920	528,761

NUMBER OF PERSONS ENGAGED IN THE FERTILIZER BUSINESS

Year	Manufacturers of fertilizers	Importers of fertilizers	Importers of fertilizers from colonies	Persons engaged in the purchase and sale of fertilizers
1925	23,383	1,128	415	45,956
1926	23,699	1,124	429	46,127
1927	23,513	1,154	446	45,975
1928	23,822	1,146	437	45,895
1929	23,924	1,152	436	45,644
1930	23,564	1,105	432	45,098
1931	23,334	1,072	428	43,913
1932	23,218	1,052	434	42,131
1933	23,083	1,035	453	41,614
1934	23,529	1,004	451	40,855

Cement

History

In 1871, cement works were established by the Government in Fukaguwa District in Tokyo. This was the origin of the cement industry in Japan. For ten years the works gradually expanded so that by 1891, the total capital invested in the industry was ¥1,000,000, the works numbered ten and the capacity was about 300,000 barrels a year.

In 1898, there were sixteen works with an aggregate capacity of 1,000,000 bbls, and imports were entirely excluded. In 1912, there were nineteen companies and twenty three mills. The total capital invested amounted to ¥18,000,000 while the capacity had increased to 4,000,000 bbls.

During the World War, the indus-

try enjoyed unprecedented prosperity and expanded rapidly. New companies were formed and new mills added. At the end of 1926, companies numbered twenty-one with thirty four mills, the total authorized capital was ¥118,000,000 of which ¥85,000,000 was paid up, and the total production capacity had increased to 17,500,000 bbls.

During the last twenty years, demand for cement increased every year with five exceptions, there was a 2% decrease in 1912 and a 10% in 1915 and 1919. The average rate of increase was about 11%. But in 1930, domestic consumption suddenly decreased by 12%, the first time that any such sharp decrease had ever been experienced. The decrease was due to the general depression and the economic retrenchment poli-

cy of the Government following the removal of the gold embargo in January, 1930. In 1931, there was a further decrease, but in 1932, with general activity in industry being felt, there was some recovery over the previous two years.

TABLE SHOWING GROWTH OF CONSUMPTION OF CEMENT

(— shows decrease)

Year	Domestic consumption bbls	Percentage of increase or decrease
1913	3,530,084	9 %
1914	3,596,526	2
1915	3,234,644	— 10
1916	4,065,265	26
1917	4,951,142	22
1918	5,844,648	18
1919	5,256,865	— 10
1920	6,538,602	26
1921	8,091,716	23
1922	10,430,941	92
1923	11,664,285	12
1924	12,674,662	9
1925	13,582,198	6
1926	16,733,640	25
1927	18,803,080	12
1928	20,565,624	9
1929	21,736,073	6
1930	19,103,865	— 12
1931	18,087,580	— 5
1932	19,529,955	7
1933	4,022,800 metric ton	—
1934	3,856,100	— 4
1935	4,322,500	15

The Industry in Recent Years

For some years in the past, the interest of cement industry in Japan centred on the question of the adjustment of over-extended capacity of production. The result is a large curtailment of production.

In 1925 capacity was about 50 per cent. larger than the output, which became almost 100 per cent. in 1934. In recent years the greatest consumption of cement, including domestic consumption and export, was 480,000 tons of May, 1934, while the production capacity at the end of November of the same year was 1,020,000 tons a month. For almost

a year 57 per cent. of the Cement Association's (Cement Rengokai) capacity has been curtailed.

The cause of this abnormal condition of the industry is found in the fact that in fixing production curtailment ratio of the member companies of the Rengokai, it has been based on the capacities of production of the members. This led the member companies to expand capacities to get larger shares of business. The situation culminated in the latter part of 1934 in forcing the Department of Commerce and Industry to apply the Major Industries Control Law to the cement industry.

Statistics Statistics for the capacity of production, actual production, output of cement classified by uses and export of the same classified by destinations follow:

PRODUCTION CAPACITY AND ACTUAL PRODUCTION OF CEMENT

(in 1,000 metric tons)

Year	Production capacity at the end of Nov.	Actual production in the year
1926	3,549	3,200
1927	3,948	3,375
1928	4,296	3,872
1929	5,230	4,849
1930	5,934	3,748
1931	6,592	3,615
1932	6,933	3,731
1933	8,513	4,781
1934	10,020	5,018
1935	10,020	4,500

PRODUCTION OF CEMENT CLASSIFIED BY USES

(in 1,000 metric tons)

Uses	1933	1934	1935
Railways	364.5	303.2	210.5
Electric works	159.0	226.5	300.0
Harbours	202.0	138.6	108.8
Roads and bridges	498.1	385.7	284.0
Other public works	445.8	353.7	375.8
Buildings	927.1	954.8	1,073.0
Mining	47.2	59.4	952.0
Retails	1,226.6	1,379.5	1,255.2
Cement products	1,000.5	125.2	201.1
Miscellaneous	20.2	16.1	130.0
Total	3,981.3	3,897.0	4,869.1

EXPORTS OF CEMENT

(Quantity in tons and value in ¥1,000)

Descriptions	1932		1933		1934		1935	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Manchoukuo	11,555	253	10,521	205	9,016	168	3,968	65
Kwantung Province	15,471	299	38,567	1,824	221,088	4,119	108,682	2,001
China	16,722	840	25,720	395	22,662	263	22,857	237
Hongkong	108,358	2,040	88,515	1,214	62,235	668	70,003	716
British India	70,274	1,807	65,733	949	34,242	418	17,185	234
Straits Settlements	39,805	823	40,481	597	65,240	764	84,595	958
Dutch East Indies	136,324	2,600	87,646	1,368	52,564	667	44,532	549
Philippines	13,322	258	3,850	71	2,922	26	1,018	16
Others	33,732	615	53,209	768	70,841	939	302,739	3,301
Total	445,567	8,545	474,245	7,394	539,905	8,038	655,083	8,081

1935 Cement Industry

Compulsory reduction of price by the enforcement of the major industry control law and the withdrawal of the Onoda Cement Company, one of the two largest institutions of the kind in Japan, from the Cement Association threw cement circles into confusion during 1935. However, only a few companies cut their dividend rates against the expectations. The Japan and Mikawa cement companies cut their rates 1 per cent. each during the first half and the Nanto and Ube companies did the same during the second half. The control law was enforced in November, 1934, for the suspension of the increase of production, intensification of sales agreement, participation of outsiders into the Association and reduction of price. In spite of this, the business was not stabilized, due to the withdrawal of Onoda Cement from the Association. Even after the withdrawal, Onoda Cement had to abide by the law, as far as the Japanese market was concerned, but, taking advantage of the fact that Korea is outside the sphere of the law, that company set up the productive equipment and the increase of productive capacity there. While the law is applied to the Asano Cement factory in Formosa, it is invalid in Korea. A protest was raised by the Association against the

law, but the Commerce and Industry Ministry could not do anything with the defect of the law. Following the withdrawal of Onoda Cement, three others, namely, the Oita, Taihei and Denka interests quit the Association. They formed themselves a large influence confronting the Association. Their feeling grew worse and worse with each other. The Association took various counter measures in Korea. It encouraged its member companies to expand the field through subsidy. The Korean market was considerably disturbed by this. Onoda Cement's field was taken very much by the invaders, but it decided to fight out the issue. Onoda built a new factory at Komozan and others and further expanded its Kasen factory. Uno Cement and Asano Cement took the field in Korea. Onoda Cement is backed by the Mitsui Busan Kaisha.

Production of cement in 1935 totalled 5,730,000 metric tons, of which 4,550,000 metric tons were marketed at home. The production gained 1,000,000 metric tons, or 21 per cent., and the amount marketed at home 670,000 metric tons, or 17 per cent., over 1934. The total profit of various companies for 1935 was ¥12,400,000, or 19.7 per cent. The average dividend rate was 7.5 per cent., the highest being 16 per cent. for Yogyo and the lowest being 4 per cent. for Tosa.

DEMAND AND SUPPLY OF CEMENT IN 1935 BY MONTH
(In tons)

	Production	Domestic market	Exports to Manchoukuo & Kwantung Pro.	Exports to all countries	Stock in warehouse
January	280,666	208,711	1,520	18,527	303,179
February	277,933	251,330	6,631	19,864	311,415
March	338,158	370,421	9,748	19,983	235,174
April	364,268	336,250	10,817	19,170	239,583
May	383,582	360,250	19,115	38,116	199,942
June	364,279	303,298	18,843	32,560	204,350
July	378,179	317,406	16,024	62,727	181,287
August	424,153	329,799	15,201	69,593	188,454
September	410,665	327,490	8,399	60,700	199,835
October	444,507	386,426	8,308	54,840	198,801
November	419,358	371,901	5,059	21,176	216,577
December	364,313	312,132	3,705	25,343	—
Total	4,500,362	3,515,224	123,280	432,599	—

The Industry Under Major Industries Control Law Examinations of conditions of increase of monthly production capacities of companies which belong to the Cement Rengokai reveal that capacity of 551,000 tons at the end of June, 1932, increased to 638,000 tons and to 791,000 tons in the corresponding periods of 1933 and 1934 respectively, and the actual production was curtailed up to 57 per cent.

The Department of Commerce and Industry became keenly conscious as to future predicaments which might be brought in by such over-expanded capacities. As the Department found it difficult to make members of the Rengokai and the outsiders stop expansion of capacity on their own accord, it finally resorted to the application of the Major Industries Control Law to stop increase of capacity for a year, to make the outsiders join the Rengokai, and to reduce the price of cement and the law became effective on November 29, 1934.

Formation of New Rengokai As the term of the old Rengokai expired in November, 1934, the New Rengokai was formed to succeed the old one, the term of which will run to November, 1944. The New Ren-

gokai will be invested with authority to control both production and sales of the member companies starting from March 1, 1935. It was also agreed that in order to measure the actual output more correctly it would make restrictions on production based on quantity instead of on time.

Though Onoda, Oita and Denki Kagaku Co., Ltd. did not join the New Rengokai, four of Hinode, Nitto, Kyushu Industrial, and the Dai Nippon Artificial Fertilizer Co., Ltd. which used to be outsiders, joined the Rengokai, so that its members now number seventeen.

Manchurian Market The exports of cement to Manchoukuo in 1935 were 112,650 tons, decreasing 324,350 tons from 1934. Though the demand in that country may no doubt increase hereafter, the country is becoming fast self-sufficient as regards the supply of cement. Out of 174,500 tons of cement which was required by the South Manchuria Railway Co., Ltd. more than one half of the quantity was sold by Manchurian Cement, Daido Cement, Fushun Cement, Harbin Cement, Anshan Cement Co. which shows the rapid development of the cement industry in the country. In addition to the above, mills estab-

lished by Onoda Co., Ltd. in colonies will put up their products to the country, and the cement manufac-

turers of Japan proper will lose the market by so much.

Ceramics

Introduction

Pottery making has an old history in Japan. As far back as can be traced in history some potters appear to have had their secret proprietary methods of production. In the Meiji Era, especially after the Russo-Japanese War, along with the advance in industry in general, pottery making was industrialized, a procedure which was thought difficult of accomplishment, and to-day annual production amounts to from ¥60,000,000 to ¥80,000,000 in value, while exports amount to over ¥30,000,000. It is now one of the principal industries in Japan.

The chief places of production are Nagoya and Seto, both in Aichi prefecture, and the eastern part of Gifu prefecture. The quantity produced in these places amounts to about 70% of the country's total production. Seto is such a famous place for pottery that the Japanese commonly call chinaware "Seto-mono." Besides the products named above "Kutani" ware of Ishikawa prefecture, "Shimizu" ware of Kyoto prefecture, and "Arita" ware of Saga prefecture, are all famous though produced in small quantities only. Nagoya district is one of the largest pottery producing places in the world.

History

Pottery was being made, crudely admittedly, at the time of the Emperor Jimmu, the first Emperor of Japan, who lived about 650 B. C. At the time of the Emperor Suinin, that is, 66 A. D., a Korean prince was nationalized, and one of his retainers, who knew the potter's art, was able to give instruction on foreign manufacturing methods. Later, at the time of the Emperor Kammu, i. e., 781 A. D., pottery was imported from China, and the art made further progress.

In 1221 A. D., a man named Kagemasa Kato studied the art of pottery making in China. When he returned, he settled in Seto village, Aichi prefecture, and made chinaware of superior quality, the origin of the present "Seto" ware.

After that, many master artisans arose and tea-things, rice bowls, pitchers, incense burners, etc., now of great rarity and value were produced.

Present Condition of the Industry

In 1934 total production amounted to ¥92,363,691, while there were as many as 6,473 factories and 57,172 employees.

The following table shows how this industry has developed recently.

FACTORIES AND PRODUCTION OF CERAMICS

	No. of Factories	No. of Operatives	Table-ware	Furniture	Building Materials	Insulators	Toys	Others	Total
									(In Yen)
1927	6,840	46,113	43,478,965	14,251,154	3,739,274	6,925,871	1,062,697	4,905,033	74,363,381
1928	6,862	47,103	43,994,120	14,448,499	3,242,134	8,028,938	1,056,617	5,955,760	76,726,018
1929	6,635	44,356	41,866,937	13,690,379	3,139,863	7,210,453	1,074,811	7,791,027	74,767,470

	No. of Factories	No. of Operatives	Table- wares	Furni- tures	Building Materials	Insu- lators	Toys	Others	Total
									(in Yen)
1930	6,435	41,226	34,737,329	11,879,836	2,235,918	6,006,096	935,719	6,625,941	62,419,880
1931	6,353	40,320	31,926,067	9,388,264	2,304,914	4,154,638	1,103,012	5,320,929	54,197,884
1932	6,474	43,948	35,733,104	11,593,447	2,934,639	4,742,886	2,595,435	7,663,341	65,262,832
1933	6,586	53,392	45,204,776	14,910,054	6,131,345	5,886,047	2,003,566	10,110,712	85,246,500
1934	6,473	57,172	54,001,916	15,573,168	5,876,879	6,166,129	2,381,099	7,764,502	92,363,691

Production of earthenware and porcelain in Aichi Prefecture, the largest producing centre in Japan, during 1935 set an all-time record high with ¥50,743,000, gaining ¥3,762,082, or 7.5 per cent., over the year before. This was caused by a large production of electric insulators, tiles and other articles. Details of production follow:

	1935	Compared with 1934
	(In yen)	
For kitchen utensils	¥2,707,284	in. 660,591
For furnitures and decoration	6,763,344	de. 360,723
Industrial purposes	2,209,347	in. 166,277
For insulators	4,139,566	in. 1,633,483
For toys,	3,025,347	in. 369,276
Tiles and others	4,565,022	in. 1,326,778
Total including others	53,743,160	in. 3,767,282

The number of factories in that prefecture in January, 1936, was 2,062, with 2,938 kilns. The operatives numbered 26,767. Production in various parts of the prefecture for 1935 follows:

	Production	Operatives
Nagoya City	¥33,780,420	15,196
Seto City	11,699,550	5,242
Higashi Kasugai County	3,731,325	3,046
Chita County	3,243,564	1,275
Heikikai County	672,317	1,610

Exports of Chinaware

Though exports of chinaware amounting to ¥1,300,000 were made

EXPORTS OF CHINAWARE TO DIFFERENT COUNTRIES

	(in ¥ 1,000)						
Countries	1914	1930	1931	1932	1933	1934	1935
Manchoukuo	—	—	—	—	531,128	1,238	1,179
China	457	1,697	617	554	991	1,387	1,208
Kwantung Province	167	841	560	756	1,193	2,084	1,794

as early as 1886, the export business did not develop to any great extent until the Russo-Japanese War. In 1904, the Nippon Toki Kaisha, Ltd., was organized, to be quickly followed by the Toyo Toki Kaisha, Ltd., and the Nagoya Seito-sho. Each of these companies established large mills with up-to-date equipment and began to produce chinaware on a big scale. Painstaking studies were made to improve the products and build up an export business, and these, together with other special reasons, account for the remarkably large increase in exports. The special reasons are:

(1) Japan is able to produce specially thin chinaware that other countries cannot.

(2) Japanese artisans are especially clever at their work.

(3) The cost of production is reasonable.

Just at the time when the industry was organized on a modern basis, the World War broke out. Pottery works in belligerent countries in Europe were closed down and exports from Japan increased by leaps and bounds. A temporary set-back was experienced when the War ceased, but a recovery was soon made and there was a steady growth until 1929, then there was a falling off until 1932, when some slight gain was made over the previous year.

Countries	1914	1930	1931	1932	1933	1934	1935
Hongkong	349	525	243	142	247	442	—
India	234	1,867	1,391	3,463	3,965	3,204	3,529
Straits Settlements	181	399	210	374	900	1,290	763
Dutch East Indies	121	2,765	1,711	2,424	3,728	3,269	2,120
French Indo-China	46	31	18	36	144	134	—
Philippines	—	679	409	635	959	580	918
Great Britain	291	719	696	825	1,296	1,161	1,186
France	126	883	1,079	311	643	355	—
Germany	127	317	199	100	146	221	—
Italy	—	242	195	236	371	343	—
Holland	42	1,157	1,200	848	981	761	498
U.S.A.	3,183	10,820	6,634	6,180	10,180	14,310	15,776
Canada	121	1,391	1,139	1,317	1,399	1,508	1,458
Argentina	—	249	174	150	395	628	767
Brazil	—	140	79	118	370	554	672
Egypt	—	119	146	408	438	627	—
Australia	158	769	665	1,768	2,707	2,331	2,804
Others	303	2,049	1,942	1,962	4,040	5,440	—
Total	5,913	27,171	19,307	22,937	35,634	41,879	42,734

Domestic Consumption

There are no statistics to rely upon for the exact amount of domestic consumption, but if we subtract exports from the total production we have an approximate value. Figures shown in the second column of the first table "Production of Pottery" give some idea of the amount. Though tile making is growing fast on account of the increase in building of Western style houses, the market

was depressed because of lack of control over production and sales.

The peculiarity about chinaware intended for domestic use is that it must be made by small factories on the family basis. The reason is that the taste of the Japanese for chinaware are very varied, differing according to each individual as to the form, colour, design, etc., and making it impossible to produce on large scale mass production principles.

Glass and Glass Manufactures

Origin and Development

As far as historical record shows, the art of glass manufacturing was developed in the Nara period, that is about 700 A.D. Later, technics of manufacturing were imported both from the South Sea Islands and China, and put into practice in Osaka, Kyoto and Tokyo, where the industry developed. After the Meiji Restoration, the Government established a model factory to encourage

the development of the industry and various attempts were afterwards made to make glass and glassware both by the Government and by individual concerns, but it was not until after the Russo-Japanese War of 1904-1905, that the industry made any great progress.

Present Condition

Due to the strenuous efforts of manufacturers and advantages from a low exchange rate since the gold

embargo was replaced, the glass industry in Japan is doing remarkably well. Imports have gained but little during the past six years. They were worth ¥8,860,552 in 1926, ¥9,075,651 in 1933, ¥4,607,129 in 1934 and ¥6,322,000 in 1935.

On the other hand, the exportation of Japanese glass products, stimulated by exchange relations, has been exceptionally active since the last gold embargo was clamped. Exports in 1933 came to ¥15,326,611, in 1934 to ¥19,454,333, and in 1935 to ¥23,337,000, the largest so far. Glass products from this country are shipped to almost all parts of the world.

A strong point for Japanese glass exports is that Japanese manufacturers and traders are able to reduce their export prices by 30 per cent., since the present prices are 30 per cent. higher than usual. Exporters are wisely leaving room for competition with foreign products, even though tariff rates are raised by foreign countries. Still, the present prices of Japanese products are low and for this reason, they are in heavy demand abroad.

Glass Tableware Glass tableware was early manufactured in Kagoshima and the old province of Satsuma in Kyushu Island. After the Meiji Restoration it was manufactured by the Shinagawa Shoshi Seizosho (Shinagawa Glass Co.) which was under Government control. At present it is manufactured by the Fuku-shima Glass Co. organized in 1896, Koidé Shoshi Seizosho (Koidé Glass Co.) established in 1898, Marusa Glass Co., organized in 1918, and the Kawai Shoshi Shokki Seizosho (Kawai Table Glassware Co.) organized in 1920, etc. Production by these and other manufacturers is given below.

Other Glass Articles Glass articles for scientific and medical purposes were manufactured as early as 1850.

There are many manufacturers of these articles in Tokyo district.

The manufacturing of eye-glasses was first practised as early as 1600. In 1873, a certain Mr. Matsugoro Asakura from Tokyo, went to Austria and learned the art of manufacturing eye-glasses on modern principles. His son and several others are now manufacturing them.

Red glass was manufactured by the Kagoshima clan prior to the Meiji Restoration, and later by the Shinagawa Shoshi Seizosho, which was under Government control. Also a certain Mr. Tokijiro Iwashiro succeeded in manufacturing lenses for the use of search-lights, and light-houses. The right of manufacturing these lenses was later transferred to the Nippon Kogaku Kogyo Kaisha, Ltd., (The Nippon Optical Science Industrial Co., Ltd.). Mr. Iwashiro's son later succeeded in manufacturing cut glass.

Glasses for optical work were mostly imported from Germany before the World War, but when the supply was cut off by the war, it was determined that "lenses for optical science must be produced at home at any cost." The Nippon Kogaku Kogyo Kaisha, Ltd., to which all the results of studies made by the naval arsenal were transferred in 1914, and the Osaka Industrial Research Institute, which started research work in 1921, continued investigations. The Osaka Institute succeeded in 1925 in discovering a formula for manufacturing lenses superior to German makes at reasonable cost. The Nippon Kogaku Kogyo Kaisha, Ltd., also succeeded in finding a way to make these lenses, and it is probable that the importation of lenses of these classes from Germany will, in a not distant future, become unnecessary.

Glasses for the chemical industry, that is, hard glasses, are manufac-

tured in several mills in Japan. High grade hard glass which is not in any degree inferior to the best imported is now manufactured by several firms for thermometers, gauges and the chemical industry.

Sheet Glass

Though many efforts were previously made to manufacture sheet glass, it was not until 1904 that a Mr. Magoichi Shimoda, after two years of experimental manufacture, was successful in producing a product that could be put on the market.

In 1907, the Asahi Glass Co., Ltd., was organized in Amagasaki, Hyogo prefecture, by the family of the late Baron Yanosuké Iwasaki. An expert and five skilled workmen were brought over from Belgium and commenced to manufacture from 1909. The company struggled for 7 years against difficulties in technique and pressure of foreign competition, and in the end succeeded in producing about 120,000 cases a year. In 1914, a patent, which enabled the company to produce sheet glass by a mechanical process was bought from the American Window Glass Co., Ltd.,

and a factory was established at Makiyama in Tobata, Fukuoka prefecture. On account of the cutting off of imports from Europe during the World War, the company not only increased production, but exported their products to places far afield as South Africa and London. In 1916, the company established a factory in Tsurumi, Yokohama, and in 1917 another in Yawata, Fukuoka prefecture. In 1923 and 1924, the factories in Makiyama and Tsurumi were extended, and at present the company is able to produce as much as 330,000,000 sq. feet.

The Nichi-Bei (Japan-American) Sheet Glass Co., Ltd., was organized in 1917 and was the first to use the sheet process in Japan. The Shoko Glass Co., Ltd., was organized in 1925 under the joint management of the Asahi Glass Co., Ltd., and the South Manchuria Railway Co., Ltd. The company is manufacturing glass under licence from the Asahi Glass Co., Ltd., by the method employed by the latter. At present the above mentioned three companies only are manufacturing sheet glasses.

PRODUCTION OF GLASS AND GLASSWARE

(one case contains 100 sq. ft. of glass)

Year	Table ware	For decorative purposes		For illuminating purposes		Bottles
		Beads and balls	Arm rings (in ¥1,000)	Shades and globes	Others	
1925	2,610	—	1,263	2,423	—	20,764
1926	3,081	—	884	2,501	—	19,568
1927	5,109	—	907	2,926	—	16,195
1928	2,956	—	1,015	3,193	—	17,026
1929	3,860	455	1,070	1,326	435	17,813
1930	2,870	893	859	838	244	14,765
1931	2,455	71	570	388	944	10,927
1932	4,193	373	683	391	733	11,193
1933	4,143	302	696	499	1,280	16,845
1934	5,454	460	853	471	1,414	20,349

Year	Sheet glass thickness under 2.2 mm.		Sheet glass thickness under 4 mm.		Others		Looking glasses		Others and Total
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
	(Quantity in 1,000; Value in ¥1,000)								
	cases		cases		cases		cases		
1925	—		17,286		—		—		47,854
1926	—		15,504		—		—		45,890
1927	—		14,478		—		—		44,270
1928	—		15,145		—		—		44,081
1929	1,606	12,121	53,339	426	143	2,256	45	789	44,069
1930	1,863	12,915	169,680	2,291	12	220	44	25	40,583
1931	2,104	13,630	99,484	1,010	16	332	53	128	34,338
1932	1,757	9,908	337,559	2,137	210	2,124	80	235	37,233
1933	2,039	15,237	427,387	3,988	335	3,147	74	288	52,926
1934	2,124	15,335	513,628	4,449	259	3,641	0.45	433	58,837

EXPORTS OF GLASS AND GLASSWARE (Value in ¥1,000)

Kinds	1930		1931		1932	
	Quantity	Value	Quantity	Value	Quantity	Value
Window glass in 1,000 sq. ft.	3,799	260	2,808	203	5,120	377
Thermos in doz.	232,096	1,525	116,570	690	92,055	533
Glass bottles in 1,000 doz.	15,550	2,970	11,307	2,109	16,471	2,814
Glass cups in 1,000 doz.	2,285	1,376	2,853	1,448	3,746	1,724
Glass tableware in 1,000 doz.	142	126	199	167	485	337
Watch glasses in gross	71,855	109	63,550	71	76,375	83
Glass beads and balls in 100 kin	7,980	503	6,301	371	16,948	1,043
Spectacles in 1,000 pcs.	2,587	265	2,157	221	4,354	412
Looking glasses in 1,000 pcs.	16,091	1,352	12,705	908	22,871	1,306
Other glasses & manufactures	1,118	849	—	341	—	625

Kinds	1933		1934		1935	
	Quantity	Value	Quantity	Value	Quantity	Value
Window glass in 1,000 sq. ft.	13,710	969	28,318	1,596	25,372	1,319
Thermos in doz.	191,455	1,330	234,104	1,653	301	2,294
Glass bottles in 1,000 doz.	19,118	3,795	20,394	4,618	25,985	5,741
Glass cups in 1,000 doz.	4,738	2,827	5,375	3,327	6,776	3,901
Glass tableware in 1,000 doz.	1,118	749	996	926	1,368	1,242
Watch glasses in Gross	88,150	99	119	132	132	151
Glass beads and balls in 100 kin	19,606	1,179	2,277	1,351	25	393
Spectacles in 1,000 pcs.	8,705	997	12,738	1,451	19,813	2,055
Looking glasses in 1,000 pcs.	40,047	2,226	54,597	2,645	77	3,372
Other glasses & manufactures	—	1,151	—	1,750	—	2,159

IMPORTS OF GLASS (Value in ¥1,000)

Kinds	1930		1931		1932	
	Quantity	Value	Quantity	Value	Quantity	Value
Uncoloured plate glass under 2.2 mm., 1,000 sq. m.	2,216	1,392	2,053	825	1,565	977
Uncoloured plate glass under 4 mm., 1,000 sq. m.	118	174	36	67	53	260
Other uncoloured plate glass in 1,000 sq. m.	430	2,086	370	1,772	247	1,835
Other plate glass in 1,000 sq. m.	551	972	607	832	431	845
Plate glass having inlaid metal wire or net in 1,000 sq. m.	183	511	136	367	122	504
Dry plates for photography in 100 kin	17,008	1,472	17,008	1,472	18,770	1,620

Kinds	1933		1934		1935	
	Quantity	Value	Quantity	Value	Quantity	Value
Uncoloured plate glass under 2.2 mm. in 1,000 sq. m.	1,410	1,090	1,131	954	476	337
Uncoloured plate glass under 4 mm. in 1,000 sq. m.	35	255	44	357	41	287
Other uncoloured plate glass in 1,000 sq. m.	166	1,022	176	1,865	116	1,810
Other plate glass in 1,000 sq. m.	460	928	315	676	182	459
Plate glass having inlaid metal wire or net in 1,000 sq. m.	164	632	204	753	158	637
Dry plates for photography in 100 kin	14,162	2,195	12,564	1,823	11	1,736

Lacquer-ware

Historical and General

Industry Inherent The Japanese are a people skilled in handiwork. Prior to the introduction of modern productive industries from the West in the early years of Meiji, the Japanese were separated from Occidental civilization and culture and the various handicraft industries that had come down from ancient times were in a flourishing condition and in a state of development peculiar to the country. The industries especially referred to are the silk, porcelain, earthen-ware, lacquer-ware, cloisonné-ware, gold lacquer-ware and the metal engraving.

The lacquer-ware industry existed in ancient times. As was the case with the ceramic industry, it progressed with the introduction of Buddhism and of advanced methods from China, but did not make so notable a development as in the case of the textile, ceramic or other industries. With the rise to favour of the tea ceremony in the Ashikaga Period, Kyoto monopolized the production of lacquer-ware, although wares of nearly the same kind, such as "Wajimanuri" and "Shunkeinuri" were produced in fairly large quantities in different places and were largely used for table-ware. After the Restoration of Meiji there was

a considerable decline in the demand for such wares as "Noshironuri," "Wakanuri" and "Tsugarunuri" which had been popular in the Tokugawa Period, while the output of "Wajimanuri," "Kurodenuri," and "Imazunuri" which had principally been used as table-ware greatly increased as they were being exported in increasingly large quantities.

Urushi Obtainable Only in the Orient Japan is the only country in the world enjoying world-wide renown in the technical art of lacquer-ware manufacture. The various industrial arts of Japan such as the porcelain and weaving owe their origin to China or Western countries, but as regards lacquer, Japan acknowledges no teacher; from remote antiquity, especially in the technique of relief lacquer the art has developed without aid from any foreign methods of manufacture or materials. For more than two thousand years the craftsmen of Japan, having striven to improve, finally attained a degree of wonderful skill. The production of lacquer-ware is confined to Oriental countries where only lacquer juice, known as urushi, is obtainable—Japan, China, Korea and India,—although there is an evident tendency in Western countries in recent years to manufacture lacquer-ware of industrial art value.

The application of mother of pearl, known as nacre work, became common during the Nara Period. A large number of ancient examples of lacquer-ware that have served as models for succeeding generations are still kept in the Shosoin, the Imperial Treasure House in Nara. These represent products of the Tempyo Age, when even large wooden buildings were lacquered. Among such buildings left standing are the Chuson Temple in Iwaté prefecture and the Byodoin Temple in Kyoto prefecture. Embossed lacquer-ware was invented during the Kamakura Period, when tasteful designs of chrysanthemums and other flowers were in vogue.

From Toyotomi Downward A golden mother of pearl inkstone case in embossed lacquer with a chrysanthemum design is now treasured in the Hachiman Shrine at Kamakura. The pomp and glory of the third Ashikaga Shogun stimulated the art and resulted in the perfecting of embossed lacquer work and the extension of its application to articles of daily necessity. Hideyoshi Toyotomi accomplished his gigantic task of pacifying the country. Grandeur was a unique feature of his administrative policy and social and other life in those days. The grand Momoyama style was reflected on the industrial arts. Koetsu relief lacquer was supreme and Kodaiji relief lacquer was also produced, representative lacquer products of those days. When the third Tokugawa Shogun, Iyémitsu, came into power, he erected the great Nikko mausoleum and Zojoji Temple at Shiba, Tokyo for his grandfather and father respectively, and lacquer was amply applied to these buildings. During the reign of the fifth Shogun, Tsunayoshi, an exquisite technique attained its zenith, defying all the imitative powers of succeeding genera-

tions. It was applied to scabbards of swords, miniature medicine-cases (known as inro) and various articles used by the Daimyo. Notable lacquerers such as Koami Chofu, Koma Ikyu, Ogata Korin and others flourished during this period. Since that time the production of lacquer has spread to various localities throughout the country, and unique local colour has been freely introduced into the design. Competition ensued as in all industrial articles, and some of the products of those days were exported abroad. Japanese industrial arts were almost wholly neglected during several years following the Meiji Restoration. Lacquered articles of artistic value were sold at ridiculously low prices and these were purchased by foreigners who had eyes for their value and who took them to their own countries. This provided an opportunity to introduce the Japanese lacquer art to foreign countries, but at the same time Japan lost many articles of both æsthetic and monetary value.

Its Fine Quality A French steamer was wrecked off Izu while outward bound from Japan laden with Japanese lacquer-ware that was to be exhibited at the Vienna International Exposition in 1873. The cargo was salvaged 18 months after the accident and the lacquer goods were found to be undamaged. On slight polishing they regained their former lustre and thus displayed the intrinsic value of this national art product. When the news of this salvaging and condition of the goods became known abroad the export trade took a sudden spurt forward, but there were traders who exported goods of poor quality, and did great damage to the credit and value of Japanese products in the eyes of foreign customers. Apart from defects in manufacture, some of the bad reputation which exported Japanese lacquered-ware

has gained, is ascribed to the fact that some manufacturers are producing inferior articles on account of having been forced by exporters to lower prices, but of late years efforts have been made by the authorities concerned to remedy these evils.

How the Ware is Made

Lacquer Juice Lacquer juice forms the main material of the craftsmen. It is obtained from the lacquer (*urushi*) tree grown in Oriental countries and is a milky juice with a greyish-white colour. In air it undergoes an oxidizing process, becomes brown and finally solidifies. When solidified, it is not soluble in ordinary solvents and has an unusual resistance to acids. Its beautiful appearance and smooth feel defy paint and varnish. Lacquer juice is regarded as a botanical excrete and in normal conditions is stored in a fixed position in the tree. The tree is tapped by making a horizontal, slanting or V-shaped incision of 10 centimetres right to the sap, and from this the greyish-white juice oozes. Attempts have been made to obtain the juice by means of pressing the bark and leaves of the tree, or by using alcohol, but without success. The greyish-white product is called raw lacquer and is used for the initial application to the goods to be lacquered. As material for the finishing applications and colour lacquering the water is extracted from the juice, and various refining processes follow according to the result required. The chief ingredients of raw lacquer are Urshiol, 77.63%, gummy substance, 2.62%, carbonic substance 1.94% and water 17.81%.

Manufacturing Process Lacquer-ware manufacturing is divided into three stages, namely, the initial application, lacquering and relief

lacquering. The process is further divided into different categories according to technical experience and skill. Wood, bamboo, paper, metal and porcelain are used as basic materials for initial lacquer applications. Wood is mostly used throughout the country, but wood has the drawback of swelling and contracting according to weather condition. Bamboo and paper are used for particular lacquer-ware making, while metal and porcelain are less commonly used. The initial application is made on the surface of the ware by means of a spatula or brush, the article is thus made water-proof and the absorption of lacquer applied to finish or fill in tiny holes or other defects is prevented. The finishing process is of course for the purpose of making the ware solid and smooth.

Lacquer is the best material for the initial application, though shibu-varnishing or glue-varnishing is also practised, especially for low grade wares. The juice of the astringent persimmon is the chief substance of shibu, and with this is mixed powdered charcoal or other materials. Glue is also used as a raw material, but it is not much good for solidity. Glue-varnished wares are made mostly for export, and the bad reputation that modern Japanese lacquer-ware has in foreign markets is chiefly ascribed to these glue-varnished articles. Formalin is used to solidify these wares. As regards the finishing application, a proper amount of pigment is added to refined lacquer to make it coloured or transparent, and this is finely applied to wares that have been through the initial application. These are then kept in a wooden closet to avoid dust and allowed to dry. This is called fresh lacquering. When wares are dry, they are polished by charcoal.

Relief lacquering was evolved to give beautiful designs to wares after the finishing application had been gone through. Pictures or designs are painted on the articles by lacquer and before the lacquer is dry, gold, silver and other metallic dust or pigment is applied. Then polishing for the finishing touches takes place. This is called ordinary relief lacquering, but there are other methods of production and prices differ according to the extent of finish. Of the two principal methods of manufacturing high-class goods, polished relief lacquering is one. When the ordinary relief lacquering process is completed, lacquer is once more applied to all the surface and the whole is then polished by charcoal, and the design is presented on the flat surface. The other is embossed relief lacquering, and this requires much time and skill. Designs are made in high relief and the ordinary relief lacquer is applied.

Shells, corals, jewels and stones are often inlaid in lacquer-ware and to these are applied transparent or block lacquer, the product being known as aventurine-ground lacquer-ware. Gold dust is also applied in relief and this is known as flush pointing. Another unique lacquering is the application of coloured lacquer coatings for as many as a hundred times, and when dry an exquisite design is carved on the ware. This process somewhat differs from relief lacquering but it forms one of those elaborate methods in the manufacture of the lacquer-ware which remains one of the outstanding products of the Japanese craftsman.

Production

There were 12,223 factories with 37,641 operatives. The value of production in 1934 amounted to ¥36,311,759, a gain of ¥6,740,094 as compared with the previous year.

FACTORIES AND PRODUCTION OF LACQUER-WARE

	No. of Factories	No. of Operatives	Tableware	Production (in yen)		Total
				Furnitures	Others	
1927	9,794	26,642	14,995,802	8,913,855	10,613,854	34,523,511
1928	10,286	27,168	16,131,984	9,160,538	10,670,232	35,962,754
1929	10,350	30,078	26,004,026	8,249,723	9,613,133	33,866,882
1930	10,081	28,622	12,119,306	7,374,419	8,750,370	28,244,095
1931	10,056	27,975	10,717,856	6,899,725	8,041,112	25,658,693
1932	10,267	28,794	10,851,938	6,918,301	8,862,670	26,632,909
1933	10,784	30,431	12,139,600	8,012,675	9,419,390	29,571,665
1934	12,223	37,641	13,366,815	9,437,231	13,507,713	36,311,759

CHAPTER XXIII

MISCELLANEOUS INDUSTRIES (Continued)

Caustic Soda, Soda Ash, Bleaching Powder, Dyestuff, etc.

Introductory

The Japanese chemical industries involving the manufacturing of caustic soda, soda ash (sodium carbonate or washing soda) and bleaching powder owed their development to the World War, which stimulated them to sudden growth. More than 10 companies were founded during that period, but only a few of them survived the great economic slump which followed the termination of the World War. For a long time after the War, the industries were in a depressed condition. It has been no easy matter for the existing companies to have arrived at their present stage of development, many attempted but fell on the way, often with others to be merged with stronger concerns. Those which are doing business at present are all backed by large business houses or financing organizations. Protection of the Government, which is alive to the momentous value of these industries, must not be ignored. Without Government protection and encouragement, the prosperity to which they have now attained would never have been realized. There are about nine leading industries which the Government and the various authorities concerned are making efforts to consolidate, and this is one of them. The others are the nitrogen fixation industry, the dyestuffs industry, the iron and steel manufacturing industry, the aluminium industry, the oil industry, the automobile industry,

the photo-chemical industry, and the minute chemical industry.

Soda Ash Industry

The soda ash industry holds an important position in Japanese industrial circles. It is an industry inseparable from that of glass and other chemical industries that require considerable amounts of alkali. Soda ash occurs in its natural state in some parts of the world, but in this country it has to be prepared from salt, and as salt is a Government monopoly the price is high, so when the Asahi Glass Company, in order to attain self-sufficiency, started the production of soda ash after the World War it did so on an uneconomic basis, but the Government came along and by granting liberal subsidies to this and other concerns saved the industry and put it on a paying basis. Brunner, Mond and Company (British) and H. Ahrens and Company (German), who used to be the largest importers, were hit hard by this development in home production. The history of the growth of the soda ash industry in Japan is the history of strife between the Asahi Glass Company, backed by the Mitsubishi interests and protected by the Government, and these foreign concerns. The total production of soda ash in 1933 was 272,135 tons while about 20,372 metric tons were imported. In 1934 Japan succeeded in exporting about 17,496 metric tons and has become more than self-sufficient in this article.

Caustic Soda

As a by-product of the production of caustic soda the poisonous gas chlorine is freed. This gas is made into commercial bleaching powder, and in the past the commercial production of caustic soda was only possible if a good price was obtained for bleaching powder and the industry was greatly dependent on this latter commodity for quantity of production. Nowadays, as soda ash is being produced cheaply, caustic soda is being manufactured from it and domestic production is increasing. The replacement of the gold embargo and the raising of the tariff virtually sealed the activity of the British importing concern, whose pressure was a great hindrance to the development of the Japanese soda ash industry, and self-sufficiency in the production of both soda ash and caustic soda has been thereby attained. Brunner, Mond and Company has largely restricted its activities and home production has greatly increased. The Asahi Glass Company and Nippon Soda Kaisha, known as N. S. K., have recently expanded their equipment for producing soda ash to an annual productive capacity of 150,000 tons, which is about 30,000 tons more than the yearly domestic demand. The production of caustic soda in 1935 totalled 210,030 tons which showed that the increased productive equipment of N. S. K. and the Electrolytic Soda Industry Company was completed.

Bleaching Powder

The demand for bleaching powder has become active since an improvement was registered by the paper manufacturing companies, who consume 70 per cent. of the total production. The business solely depends on the rise and fall of the

foreign-style paper manufacturing industry.

The Industries in 1935

Caustic Soda Along with the increase in the production of rayon, that of caustic soda also gained. Especially the increase of production by ammonium method was remarkable. The Asahi Glass Company commenced activities in 1932 and completed equipments for a production of 110 tons per day. Owing to prosperous export, equipments for production by electrolysis method were extended also. The Nippon Soda Kogyo Kaisha added a mill with a capacity of 10 tons a day; the Nippon Electrolytic Soda Industry Co. one with 24 tons; the Saita Ryuso Kaisha one with 8 tons; the Tsurumi Soda Kaisha one with 12 tons, while the Nobeoka Mill of the Asahi Bemberg Co. has become self-sufficient with regard to the supply of caustic soda, and the production of 1935 was 198,000 tons against 164,834 tons for 1934 gaining nothing particular. On the other hand, imports in the same year totalled 20,372 tons and showed a decrease of 2,876 tons. Exports totalled 17,426 tons against 12,293 tons for 1934.

Soda Ash Along with the activities in glass, soap, dye-stuff, and medicine industries this industry was active, too, its production amounting to 198,307 metric tons. Exports also totalled 30,649 tons.

Imports of soda ash into Japan have been conducted mainly by the Imperial Chemical Industry Co., London (I.C.I.). The 1935 imports were 38,263 tons. To the I.C.I. the Oriental market is that which cannot be forsaken, considering the protection of its established influence for many years. Japanese soda ash has begun to be exported since 1932. Its exports for that year totalled 8,365 tons, those for 1933 totalled 10,653

tons, those for 1934 totalled 15,695 tons and those for 1935 totalled 30,649 tons, setting an all-time record high. Imports of ash are mostly from Africa (21,055 tons for 1935), from Great Britain (15,861 tons), from China (1,132 tons) and from the United States (215 tons). Exports of ash for 1935 were 11,520 tons for Manchoukuo, 6,853 tons for China, 7,000 tons for British India, 1,231 tons for South America and 4,045 tons for others. Production of soda ash is gradually increasing. Its exports also are gaining, while imports are falling. The Tokuyama Soda Company and Asahi Glass Company are engaged in ousting imports and this has resulted in their competition. The Dai Nippon Artificial Fertilizer Company also has begun supplying it. The Manchuria Soda Company also will begin production of soda ash in 1936 and this is also the case with the Kyushu Soda Company. Thus, the supply is on the increase. Exports also are destined to advance, as they are demanded in Oriental countries. Exports of sheet glass and glassware also are very heavy, in spite of high tariff barriers. As regards caustic soda, Tokuyama Soda was the first to succeed in caustification of soda in 1931 and until that time soda was manufactured on electrolysis. In 1932 Asahi Glass also started the soda caustification. A keen competition thus followed on sales between caustic soda and electrolytic soda. Caustic soda had its main object its sales to rayon manufacturing companies, but with the subsequent production curtailment of rayon and the competitive commencement of manufacturing by Asahi Glass the situation has been confused considerably. The price naturally went off. Exports of caustic soda from Japan in 1932 were only 3,178 metric tons,

which advanced to 5,074 metric tons in 1933, further to 12,146 metric tons for 1934 and finally to 17,496 metric tons for 1935. Imports of caustic soda for 1935 totalled 19,936 metric tons, larger than exports. Exports were for the Dutch East Indies (3,240 tons), China (3,313 tons), Manchoukuo (1,986 tons), British India (1,657 tons), South America (2,275 tons) and others (5,025 tons).

Bleaching Powder In recent years the control of cartel on the production and sales of bleaching powder has been much weakened owing to the fact that some companies are producing liquid chlorine and is selling it as such. In order, therefore, to make the control of bleaching powder effective it was agreed to extend it to the production, sales and price of liquid chlorine by the Joint Sales Association of bleaching powder. Production of bleaching powder in 1934 totalled 64,980 tons, showing a gain of 3,838 tons over 1933. Exports showed an increase, too, and amounted 4,247 metric tons.

Statistics Below are given data bearing upon the industry of these three articles:

PRODUCTION AND IMPORTS OF SODA ASH

	Production (In metric tons)	Imports
1924	2,002	118,898
1925	11,162	130,069
1926	17,318	36,534
1927	23,130	100,424
1928	30,328	73,649
1929	43,533	75,116
1930	57,233	65,206
1931	93,244	54,336
1932	134,807	46,424
1933	272,135	46,447
1934	262,291	37,139
1935	198,307	38,263

PRODUCTION, IMPORTS AND EXPORTS OF CAUSTIC SODA

	Production	Exports (In metric tons)	Imports	Supply
1925	25,423	216	22,154	47,361
1926	25,341	42	36,208	61,507
1927	24,094	54	40,946	64,986
1928	28,700	33	58,593	87,260
1929	57,382	22	42,388	99,550
1930	34,738	17	37,592	72,313
1931	48,536	10	41,595	90,121
1932	75,116	2,238	28,185	101,063
1933	131,709	5,116	12,477	139,070
1934	164,834	12,293	9,928	162,469
1935	213,319	17,495	19,936	215,759

PRODUCTION AND EXPORTS OF BLEACHING POWDER

	Production	Exports	Supply	Production	Exports	Supply	
	(In metric tons)			(In metric tons)			
1924	33,368	2,752	30,616	1928	46,325	3,080	43,245
1925	36,890	2,542	34,348	1929	50,756	3,109	57,647
1926	33,288	2,618	30,670	1930	49,471	3,446	46,025
1927	37,384	2,588	34,796	1931	45,005	3,544	41,461
				1932	47,485	2,858	44,627
				1933	61,142	3,392	57,750
				1934	64,980	4,247	60,733
				1935	74,254	6,489	67,765

Soap Making

Development and Production

The industry was started early in the Meiji Era, but no great progress was made until after the Russo-Japanese War of 1904-1905, when machinery was introduced from abroad. During the World War, the industry enjoyed great prosperity, but the reaction was also very severe when it came in 1920. However, during those difficult times, the foundation of the industry became more consolidated and the quality

of soap improved a great deal.

Production of soap in Japan is as per the accompanying table. Tokyo and Osaka are the two principal places of production, the former producing about 50% of the total production in the country, while Osaka produces about 30%. Export of soap, 90% of which is toilet soap, are made mostly from Osaka for China and Kwantung Province. Imports amount to barely ¥100,000 in value a year.

PRODUCTION OF SOAP BY MILLS EMPLOYING MORE THAN 5 PERSONS

Year	(in ¥1,000)						
	Toilet soap	For industrial purposes	For medical purposes	For laundry	Powdered soap	Others	Total
1925	20,525	1,964	—	—	—	—	30,118
1926	21,825	2,114	—	—	—	—	33,906
1927	23,339	1,849	—	—	—	—	35,141
1928	24,654	2,288	—	—	—	—	39,146
1929	22,600	2,370	—	10,199	1,767	1,908	38,942
1930	19,564	2,863	397	11,098	1,833	605	35,562
1931	17,246	1,480	178	7,561	2,083	1,355	29,900
1932	19,164	1,450	268	8,389	2,642	428	32,344
1933	21,243	2,558	194	9,584	2,992	1,118	37,691
1934	21,407	1,932	377	13,756	3,331	2,037	42,843

Vegetable and Animal Oils and Fats

Introduction

For lighting purposes vegetable oils have been used in Japan for centuries. In earlier days perilla oil was used but this was later replaced by rapeseed oil. The production of these oils on an industrial basis only developed after the Russo-Japanese War of 1904-1905.

Production of hardened oil in Japan during 1934 amounted to 63,252 metric tons in contrast to 61,459 tons for 1933. The increase was the result of high market price. It is used mostly for soap making, candles and dietary purposes. Even during the time when Japan was on gold, hardened oil was exported. Since the country was off gold, exports have increased. The 1935 exports amounted to ¥8,920,000.

The principal vegetable oils pro-

duced are soy bean and rapeseed. Linseed oil, perilla oil, hempseed oil, wood oil, sesame oil, cotton-seed oil, castor oil, groundnut oil, copra oil, camellia oil etc., are also produced in considerable quantities. The production of soy bean oil in 1913 was valued at ¥1,333,000, but by 1934, this had increased to ¥14,054,736, rapeseed oil was valued at ¥13,676,703 in 1934.

Of the principal vegetable oils produced in Japan, only wood and camellia oils and vegetable wax are pressed from domestically grown seeds, all the others obtain their materials from abroad. Soy bean oil, rapeseed oil, and vegetable wax are exported, their total amount in 1935 being ¥33,051,000. The importation of vegetable oils is very small.

Statistics for the vegetable and animal oil industry follows:

PRODUCTION OF VEGETABLE OILS

Year	Rapeseed oil	Sesameseed oil	Groundnut oil	Cottonseed oil	Copra oil	Soy bean oil
	yen	yen	yen	yen	yen	yen
1925	13,511,189	2,760,426	134,172	2,040,500	2,799,482	13,923,496
1926	13,474,263	2,182,166	107,517	2,666,062	2,823,263	13,886,947
1927	15,228,035	2,443,698	229,845	1,913,650	2,090,566	13,710,316
1928	12,214,398	2,645,601	165,667	2,011,407	2,346,020	13,963,580
1929	12,214,398	2,398,899	253,559	¥3,393,863	2,800,842	13,963,580
1930	10,826,085	2,332,457	234,380	2,568,777	2,184,334	9,146,415
1931	8,074,304	2,428,682	276,802	1,456,122	1,890,339	9,143,974
1932	8,398,297	3,122,444	244,834	1,165,868	1,991,043	10,570,255
1933	10,123,029	2,662,503	385,639	2,731,458	2,657,171	13,115,461
1934	13,676,703	2,610,893	487,009	3,169,850	2,648,436	14,054,936

Year	Linseed oil	Perilla oil	Paulownia oil	Camellia oil	Other oils	Total
	yen	yen	yen	yen	yen	yen
1925	1,904,994	2,146,127	257,298	1,490,297	4,320,659	45,412,897
1926	1,520,004	1,774,963	205,567	1,184,771	4,753,063	44,233,310
1927	1,534,332	896,291	208,465	1,018,593	3,040,848	39,926,965
1928	2,733,100	1,107,100	261,197	814,459	2,974,879	41,092,703
1929	2,945,224	1,442,661	215,218	728,262	3,600,224	44,347,827
1930	1,077,673	2,422,152	207,218	599,905	2,359,477	34,102,586
1931	1,094,542	2,052,760	154,928	428,788	2,134,248	29,211,560
1932	1,015,617	2,358,302	152,654	336,860	2,434,947	31,944,837
1933	3,775,357	5,518,011	184,427	378,188	2,487,087	44,018,331
1934	3,903,933	4,998,884	250,286	402,232	3,402,745	49,605,407

PRODUCTION, IMPORTS AND EXPORTS OF CAUSTIC SODA

	Production	Exports (In metric tons)		Imports	Supply
1925	25,423	216		22,154	47,861
1926	25,341	42		36,208	61,507
1927	24,094	54		40,946	64,986
1928	28,700	33		58,593	87,260
1929	57,382	22		42,388	99,550
1930	34,738	17		37,592	72,313
1931	48,536	10		41,595	90,121
1932	75,116	2,238		28,185	101,063
1933	131,709	5,116		12,477	139,070
1934	164,834	12,293		9,928	162,469
1935	213,319	17,495		19,936	215,769

PRODUCTION AND EXPORTS
OF BLEACHING POWDER

	Production		Exports	Supply		Production		Exports	Supply
	(In metric tons)					(In metric tons)			
						1928	46,325	3,080	43,245
						1929	50,756	3,109	57,647
						1930	49,471	3,446	46,025
						1931	45,005	3,544	41,461
						1932	47,485	2,858	44,627
						1933	61,142	3,392	57,750
						1934	64,980	4,247	60,733
						1935	74,254	6,489	67,765

Soap Making

Development and Production

The industry was started early in the Meiji Era, but no great progress was made until after the Russo-Japanese War of 1904-1905, when machinery was introduced from abroad. During the World War, the industry enjoyed great prosperity, but the reaction was also very severe when it came in 1920. However, during those difficult times, the foundation of the industry became more consolidated and the quality

of soap improved a great deal.

Production of soap in Japan is as per the accompanying table. Tokyo and Osaka are the two principal places of production, the former producing about 50% of the total production in the country, while Osaka produces about 30%. Export of soap, 90% of which is toilet soap, are made mostly from Osaka for China and Kwantung Province. Imports amount to barely ¥100,000 in value a year.

PRODUCTION OF SOAP BY MILLS EMPLOYING MORE THAN 5 PERSONS

Year	(in ¥1,000)						Total
	Toilet soap	For industrial purposes	For medical purposes	For laundry	Powdered soap	Others	
1925	20,526	1,964	—	—	—	—	30,118
1926	21,825	2,114	—	—	—	—	33,906
1927	23,339	1,849	—	—	—	—	36,141
1928	24,654	2,283	—	—	—	—	39,146
1929	22,690	2,870	5	10,199	1,767	1,908	38,942
1930	18,564	2,863	307	11,098	1,833	605	35,362
1931	17,246	1,430	173	7,561	2,083	1,355	29,900
1932	19,164	1,450	268	8,389	2,642	428	32,344
1933	21,243	2,558	194	9,584	2,992	1,118	37,691
1934	21,407	1,932	377	13,756	3,331	2,037	42,843

Vegetable and Animal Oils and Fats

Introduction

For lighting purposes vegetable oils have been used in Japan for centuries. In earlier days perilla oil was used but this was later replaced by rapeseed oil. The production of these oils on an industrial basis only developed after the Russo-Japanese War of 1904-1905.

Production of hardened oil in Japan during 1934 amounted to 63,252 metric tons in contrast to 61,459 tons for 1933. The increase was the result of high market price. It is used mostly for soap making, candles and dietary purposes. Even during the time when Japan was on gold, hardened oil was exported. Since the country was off gold, exports have increased. The 1935 exports amounted to ¥8,920,000.

The principal vegetable oils pro-

duced are soy bean and rapeseed. Linseed oil, perilla oil, hempseed oil, wood oil, sesame oil, cotton-seed oil, castor oil, groundnut oil, copra oil, camellia oil etc., are also produced in considerable quantities. The production of soy bean oil in 1913 was valued at ¥1,333,000, but by 1934, this had increased to ¥14,054,736, rapeseed oil was valued at ¥13,676,703 in 1934.

Of the principal vegetable oils produced in Japan, only wood and camellia oils and vegetable wax are pressed from domestically grown seeds, all the others obtain their materials from abroad. Soy bean oil, rapeseed oil, and vegetable wax are exported, their total amount in 1935 being ¥33,051,000. The importation of vegetable oils is very small.

Statistics Statistics for the vegetable and animal oil industry follows:

PRODUCTION OF VEGETABLE OILS

Year	Rapeseed oil	Sesameseed oil	Groundnut oil	Cottonseed oil	Copra oil	Soy bean oil
	yen	yen	yen	yen	yen	yen
1925	13,511,189	2,760,426	134,172	2,040,500	2,799,482	13,923,496
1926	13,474,263	2,182,166	107,517	2,666,062	2,823,263	13,386,947
1927	15,228,035	2,443,698	229,845	1,913,650	2,090,566	13,710,316
1928	12,214,398	2,645,601	165,667	2,011,407	2,346,020	13,963,580
1929	12,214,398	2,398,899	253,659	3,393,863	2,800,842	13,963,580
1930	10,826,085	2,382,457	234,380	2,568,777	2,184,334	9,146,415
1931	8,074,304	2,428,682	276,802	1,456,122	1,890,339	9,143,974
1932	8,398,297	3,122,444	244,834	1,165,868	1,991,043	10,670,255
1933	10,123,029	2,662,503	385,639	2,731,458	2,657,171	13,115,461
1934	13,676,703	2,610,393	487,009	3,169,850	2,648,436	14,054,936

Year	Linseed oil	Perilla oil	Paulownia oil	Camellia oil	Other oils	Total
	yen	yen	yen	yen	yen	yen
1925	1,904,994	2,146,127	257,298	1,490,297	4,820,659	45,412,897
1926	1,520,004	1,774,963	205,567	1,184,771	4,753,063	44,233,310
1927	1,584,332	896,291	208,465	1,013,593	3,040,848	39,926,965
1928	2,733,100	1,107,100	261,197	614,459	2,974,879	41,092,703
1929	2,945,224	1,442,661	218,218	728,262	3,600,224	44,347,827
1930	1,077,673	2,422,152	207,218	599,905	2,359,477	34,102,586
1931	1,094,542	2,052,760	154,928	428,788	2,134,248	29,211,560
1932	1,015,617	2,358,302	152,654	336,860	2,434,947	31,944,837
1933	3,775,357	5,518,011	184,427	378,188	2,487,087	44,018,331
1934	3,903,933	4,998,884	250,286	402,232	3,402,745	49,605,407

PRODUCTION OF ANIMAL OILS AND TALLOW BY MILLS
EMPLOYING MORE THAN 5 PERSONS

Year	Cod oil yen	Herring oil yen	Sardine oil yen	Whale oil yen	Other fish oils yen
1925	146,502	—	3,115,283	—	—
1926	221,601	—	4,733,725	—	—
1927	315,458	—	5,170,870	—	—
1928	242,209	—	6,067,595	—	—
1929	225,088	304,042	3,527,435	704,925	957,117
1930	285,862	137,295	3,491,551	517,520	473,179
1931	278,245	26,686	422,439	163,921	321,170
1932	95,774	59,296	802,350	614,915	1,147,833
1933	296,362	35,854	456,752	498,194	2,018,732
1934	300,741	23,547	602,816	672,638	980,416

Year	Puna oil yen	Beef tallow yen	Pork tallow yen	Others animal yen	Total yen
1925	—	625,710	—	—	3,890,273
1926	—	1,950,947	—	—	6,906,273
1927	—	2,050,180	—	—	7,536,482
1928	—	4,133,321	—	—	10,443,125
1929	136,939	1,624,843	144,662	197,814	8,333,065
1930	97,039	996,866	169,454	292,485	6,461,251
1931	67,000	712,033	160,981	196,883	2,354,356
1932	75,714	666,015	143,921	52,698	3,658,516
1933	93,439	859,306	312,733	508,665	5,077,037
1934	110,803	630,051	287,470	791,678	4,400,160

PRODUCTION OF VEGETABLE WAX, CANDLES, AND MANUFACTURES
OF OILS BY MILLS EMPLOYING MORE THAN 5 PERSONS

Year	Vegetable wax yen	Candles yen	Bolled oil yen	Hardened oil yen	Hardened wax yen	Oleine yen	Stearine yen	Total yen
1925	2,079,947	5,827,257	1,476,339	7,427,574	—	—	—	8,903,913
1926	1,195,291	6,482,810	2,664,024	5,514,402	—	—	—	8,178,426
1927	2,877,735	5,334,372	3,351,849	6,676,627	—	—	—	10,027,976
1928	2,810,225	5,898,136	3,117,243	11,697,488	—	—	—	14,834,735
1929	1,497,875	5,175,200	3,319,275	12,124,719	1,061,950	880,688	219,425	17,559,428
1930	1,808,580	4,785,545	2,859,545	10,109,944	323,545	502,389	200,592	13,884,576
1931	1,293,719	4,471,845	2,756,897	7,175,041	517,986	419,309	213,321	10,949,181
1932	1,249,913	4,952,548	2,924,753	10,039,127	623,182	437,644	4,246,838	15,713,722
1933	1,440,017	5,410,628	3,339,737	13,594,028	513,571	552,401	2,561,846	20,561,535
1934	1,705,148	5,095,485	3,373,463	13,223,601	404,608	693,608	3,895,385	21,590,665

IMPORTS OF OILS, TALLOW AND MANUFACTURES THEREOF

Year	Olive oil yen	Beef tallow yen	Stearine yen	Oleine yen
1925	165,000	5,941,000	158,000	120,000
1926	155,000	6,324,000	203,000	212,000
1927	161,000	5,025,000	192,000	222,000
1928	125,000	5,407,000	271,000	109,000
1929	245,000	5,019,000	337,000	215,000
1930	123,000	3,894,000	242,000	112,000
1931	182,000	2,481,000	189,000	100,000
1932	327,622	2,453,516	171,751	73,995
1933	357,324	3,411,534	112,541	51,395
1934	563,411	3,380,160	161,671	32,957
1935	908,000	2,340,000	126,000	—

EXPORTS OF OILS, WAX, AND MANUFACTURES THEREOF

Year	Perilla oil yen	Bean oil yen	Rapeseed oil yen	Fish oil yen	Whale oil yen	Vegetable wax yen	Hardened oil yen
1925	—	2,878,000	1,546,000	4,127,000	—	1,414,000	—
1926	—	3,045,000	6,038,000	4,485,000	—	1,526,000	—
1927	—	1,704,000	5,863,000	7,480,000	—	2,339,000	—
1928	—	1,625,000	2,105,000	7,941,000	230,000	2,088,000	2,017,000
1929	—	2,236,000	4,316,000	7,722,000	43,000	2,255,000	2,006,000
1930	—	4,859,000	4,672,000	7,600,000	361,000	1,870,000	3,987,000
1931	803,000	1,049,000	1,963,000	1,797,000	145,000	1,154,000	2,997,000
1932	1,100,000	1,010,000	1,308,000	2,768,000	466,000	1,177,101	4,221,000
1933	3,532,000	342,000	2,345,000	2,397,000	181,000	1,139,000	4,939,000
1934	3,709,000	623,000	5,024,000	3,150,000	155,000	1,258,000	5,042,000
1935	10,052,000	1,420,000	11,212,000	6,893,000	—	1,444,000	8,920,000

Rubber

The rubber industry in Japan began with the establishment in 1886 of the Mitsusuchi Rubber Company, a limited-partnership concern, in Tokyo. The industry developed steadily through the Sino-Japanese and the Russo-Japanese Wars of 1894-1895, and 1904-1905. In 1909 there were 20 mills, 900 workers and production reached ¥4,000,000 in value. During the World War the industry further developed. The earthquake of 1923 destroyed about 80% of the rubber manufacturing capacity of Tokyo and Yokohama districts, and many people were gravely doubtful as to whether the rubber factories in those districts would ever revive, but reconstruction quickly took place

and the factories rebuilt. In 1934 the total production in the country by mills employing more than 5 persons was as large as ¥103,218,775 in value, but the figure would be much larger if we include goods produced by people working in their own homes. The number of mills employing more than 5 persons in 1934 was 765, and the number of workers 38,087. Hyogo, Tokyo and Osaka prefectures are the chief producing centres.

The chief articles produced are tyres, rubber shoes, toys, tubes, electric battery cases, etc. The following table gives statistics for mills employing more than five persons only.

PRODUCTION OF RUBBER MANUFACTURES IN JAPAN

Year	Soft Rubber Manufactures		Toys in ¥1,000	Tyres and accessories in ¥1,000	For machinery in ¥1,000
	Shoes and other footwear No. pairs in 1,000 units	Value in ¥1,000			
1925	11,742	13,922	3,437	—	—
1926	15,080	15,858	2,699	—	—
1927	17,171	18,153	3,064	—	—
1928	26,143	21,306	2,517	—	—
1929	37,913	24,934	2,318	25,753	2,126
1930	47,290	20,379	2,313	19,285	1,420
1931	32,266	15,929	3,320	19,494	636
1932	34,294	17,352	5,027	24,080	1,173
1933	40,867	21,827	5,562	31,826	1,000
1934	44,305	25,102	3,547	40,588	491

Year	Soft Rubber Manufactures			Total	Hard rubber manufactures	Grand total
	Belts in ¥1,000	Rubber pipes in ¥1,000	Others in ¥1,000			
1925				52,860	3,270	56,130
1926				54,834	3,765	58,600
1927				63,283	2,772	66,055
1928				69,075	1,195	70,270
1929	4,698	1,318	9,859	74,871	1,727	76,598
1930	4,576	1,972	9,551	59,563	1,203	60,766
1931	4,005	1,747	9,898	54,992	1,112	56,104
1932	4,438	2,191	10,563	64,827	1,054	65,881
1933	5,662	2,989	16,061	84,981	1,722	86,704
1934	7,165	3,448	20,159	100,503	2,715	103,218

Imports and Exports

The importation of rubber manufactures is decreasing each year. Tyres for automobiles, hose, belting for machinery, old rubber, etc., are the principal imports, but hose and belting of domestic manufacture are rapidly replacing the imported articles. On the other hand, the exportation of rubber manufactures is developing rapidly, especially in the case of rubber shoes.

Cultivation of Gum Trees

Plantation work by the Japanese was started as early as 1906 in the Malay States, and was later extended to Sumatra, North Borneo and other places. Soon afterwards a great interest was taken in the industry, Japanese investments quickly grew, and the work that was originally started as a private enterprise is now mostly carried on by joint stock companies.

IMPORTS OF RAW RUBBER AND EXPORTS OF PRINCIPAL RUBBER MANUFACTURES

(unit in yen)

Year	Import of Raw Rubber	Exports of Principal Rubber Manufactures		
		Boots and shoes	Tires for rikisha bicycles and other vehicles	Toys
1927	34,685,000	—	—	—
1928	28,252,000	—	—	—
1929	34,130,000	—	—	—
1930	17,930,000	—	—	—
1931	13,183,000	4,394,000	3,857,000	2,198,000
1932	15,988,000	4,889,000	4,377,000	5,505,000
1933	29,685,000	8,213,000	8,839,000	8,633,000
1934	57,337,000	3,332,000	9,994,000	6,406,000
1935	51,636,000	2,699,000	9,945,000	4,195,000

Celluloid

General

The Japanese celluloid industry made considerable development during the World War. Owing to a heavy demand coming from European countries, where factories were

closed by the War, Japanese celluloid products once dominated the world's markets, but with the termination of the War foreign products quickly regained their position in the markets captured by Japan during the War, and for some years the

industry was in a state of depression. Gradually penetration was effected by traders and exporters, and overseas markets were largely restored, especially after the replacement of the gold embargo in December, 1931. The domestic market has been prosperous for many years, without being affected very much by changes in economic conditions.

Japanese celluloid products are mainly exported to America, England, South America and Australia. They are now exported to Europe and Africa, in competition with German products, the most formidable rivals. As long as the exchange rate is low and tariff walls are not raised, the export trade is destined to be prosperous.

Celluloid manufacturing is one of the most promising industries in Japan, with total production amounting to ¥24,202,000 and exports reaching ¥14,494,000 in 1934, but it is faced with one great difficulty, that of obtaining its chief material cheaply. Camphor is the material, but as this is restricted by monopoly law its price is kept fairly high.

The greatest assets the celluloid industry in Japan has are its overseas markets, markets that are ex-

panded yearly, cheap labour, exquisite technique and advantages in the acquisition of raw materials.

The Dai Nippon Celluloid Kaisha is the largest manufacturer. 75 per cent. of the total production in Japan comes from this company, while the remaining 25 per cent. is divided among about ten manufacturing concerns, all of small scale. The company, which has a virtual monopoly of celluloid manufacturing in this country, concentrates its energies on exporting. Nearly 80 per cent. of Japan's total exports of celluloid are the produce of this company.

The company, at a cost of ¥2,000,000, has started manufacturing films at Ashigara at the foot of Mount Hakone. The films were placed on the market during 1933, and it is expected that imports, which used to amount to about ¥5,000,000 annually, will largely decrease from 1934 onwards. Cellophan is manufactured at the Kanzaki factory of the Dai Nippon Celluloid Company, and is now procurable at very low prices.

Statistics Production of raw celluloid, celluloid manufactures, and exports of the same follow:

PRODUCTION OF CELLULOID BY MILLS EMPLOYING MORE THAN 5 OPERATIVES

Year	Raw Celluloid		Manufactures of Celluloid			Total	Grand total
	Qty in metric tons	Value in ¥1,000	Toys in ¥1,000	Combs in ¥1,000	Others in ¥1,000		
1925	3,801	12,664	984		3,440	4,427	17,092
1926	3,650	9,848	1,971		3,988	5,960	15,808
1927	3,414	9,372	1,539		3,125	4,665	14,037
1928	3,989	10,932	1,724		3,825	5,550	16,542
1929	5,806	12,278	2,025	535	4,568	7,229	19,508
1930	4,146	8,029	1,757	364	2,193	4,315	12,345
1931	4,847	7,900	861	393	1,347	2,602	10,403
1932	5,700	7,974	1,040	1,056	2,145	4,242	12,217
1933	8,893	16,674	2,628	1,503	3,395	7,527	24,202
1934	10,393	20,277	1,636	1,090	4,640	7,367	27,644

EXPORTS OF RAW CELLULOID AND MANUFACTURES THEREOF

Year	Raw Celluloid		Celluloid Manufactures			Total in ¥1,000	Grand total in ¥1,000
	Qty in metric tons	Value in ¥1,000	Toys in ¥1,000	Combs in ¥1,000	Others in ¥1,000		
1924	109	371	2,718	466	584	3,769	4,140
1925	115	399	4,265	606	510	5,472	5,872
1926	48	168	4,545	602	705	5,944	6,113
1927	77	208	4,077	715	840	5,632	5,941
1928	98	249	4,229	785	1,015	6,030	6,290
1929	208	396	5,572	963	1,834	8,370	8,767
1930	161	298	4,423	631	1,267	6,322	6,621
1931	304	504	3,041	763	920	4,725	5,230
1932	511	875	2,527	1,467	1,494	5,490	6,366
1933	1,820	2,363	3,178	3,110	2,346	8,635	11,813
1934	1,804	3,303	3,708	4,260	3,223	11,191	14,494
1935	2,033	3,469	6,054	4,414	3,065	15,523	18,998

Note: Incongruity in the figures of celluloid manufactures in the production and exports tables is due to the fact that a large amount of celluloid manufacture is produced by mills where less than 5 persons are employed.

Matches

The Industry in the Past

A factory for making matches was first established in Japan, in Tokyo, in April, 1875, by a certain Mr. Makoto Shimizu, who had just returned from studying the subject in a French technical school and a match factory managed by the French Government. In the same year a factory was established in Osaka, and in 1877 another was established in Kobé. In 1878, three years after the first factory was established matches to the value of ¥24,000 were exported, and in succession factories were established in Shizuoka, Aichi, Osaka and Hyogo prefectures. By 1889, not only had the importation of matches ceased, but large quantities, in face of strong foreign competition, were being exported to China. In 1887, Hyogoken Match Seizogyo Kumiai (Association of Manufacturers of Matches in Hyogo prefecture) was formed and in 1900 the Dogyo Kumiai (Association of Traders in Matches) was organized. The industry experienced great prosperity during the Russo-Japanese War, exports were

made not only to China but also to the South Sea Islands, Straits Settlements and India. But from about that time the match industry began to develop in China and by 1908 it had developed to the extent that the market in China was considerably curtailed for the Japanese product, then when India raised her tariff on matches, and the Dutch East Indies imposed a consumption tax on them, exports of matches to countries in the Orient were considerably reduced. Exports for some time became almost negligibly small until they picked up in 1933, in which they suddenly increased to ¥3,248,000 from about ¥938,000 of 1932.

Present State of the Industry

There are 89 factories with the total monthly productive capacity of 63,000 tons, but the actual demand is about 40,000 tons or 50,000 tons.

The development of our match industry during the World War was such as to make the industry a menace to the International Match Company. This company, therefore, commenced negotiations with and

was successful in amalgamating the Nippon Match Manufacturing Co., Ltd., which was one of the Mitsui interests, and the Nippon Match Co. came under foreign management for three years, that is, until 1927, when the largest match manufacturer in Japan, the Toyo Match Co., Ltd., seeing the advantages which would accrue from co-operation with the International Match Company agreed to amalgamation. The Daido Match Co., Ltd. (The Great Consolidated Match Co., Ltd.) was organized with capital equally subscribed by Japan and Sweden, and the management was placed in Japanese hands, avoiding in this way competition in foreign markets. In Japan about 15% of the factories do not yet belong to the company, and it is necessary for the company to co-operate with these factories in order to keep up the market.

Exports The match manufacturing industry in Japan has revived since the death of Ivar Kreuger, former Swedish match magnate, in 1932. Exports increased along with the development of the industry and even in 1913 Japan's match exports totalled some ¥12,000,000 after meeting the domestic demand. During the World War annual exports were between ¥30,000,000 and ¥40,000,000, forming one of the big ten export items of Japan.

Due to the rising importance of Soviet matches in international trade, Japan's shipments to the United States have fallen almost to the vanishing point. At one time Japanese matches were most active in this trade, outstripping Soviet and Swedish matches in American sales. In spring of 1935, however, a match sales agreement was concluded in New York, covering the American market. Each group agreed to take an annual quota of 33,000 tons.

In spite of the agreement, the situation has developed adversely for the Japanese and that the trade is facing ruin. In anticipation of the conclusion of the agreement, the Soviet Union shipped vast quantities of its matches to America and since then has been under-selling all competitors.

Japanese efforts to combat this tendency have been fruitless. The Goto Match Importing Company which the Japanese exporters established in New York to handle that end of the business has not been able to check the Soviet advance, for it has been trying to get large profits on each unit, rather than meeting the Soviet price. Shipments have fallen away to nothing and the exporters here are likely to repudiate the agreement and ship directly in the future unless something is done.

When the Japanese match industry was influenced by Swedish interests the export field was limited to China and part of the South Seas. America, Australia, the Near East, Africa and Europe was monopolized by Swedish interests. After Kreuger's downfall Japanese match exporters took back their old markets. With the replacement of the gold embargo Japanese products have found their way in heavy volume to their old markets. The low exchange rate and cheap labour in Japan have stimulated exports.

Exports in 1934 and 1935 follow:

EXPORTS OF MATCHES

(Value in yen)

Destinations	1934	1935
Hongkong	954,000	1,565,000
Straits Settlements	401,000	501,000
U. S. A.	446,000	300,000
Other	1,125,000	842,000
Total	2,926,000	3,209,000

Number of Factories The number of match factories in Japan was 146 with 8,463 operatives at the end of 1934, an increase of 3 and 313 respectively.

Production of matches and allied articles in recent years has been as follows:

PRODUCTION OF MATCHES, ETC.

Year	Quantity produced gross	Value yen	Match-boxes yen	Matchwood yen
1925	24,139,266	16,987,560	1,256,968	2,558,545
1926	24,087,312	15,667,221	1,111,140	1,566,661
1927	3,301,575	14,540,033	1,217,350	2,202,373
1928	19,471,637	12,445,793	741,202	1,383,046
1929	21,607,663	9,825,405	1,358,616	1,220,148
1930	16,722,653	7,464,081	645,765	600,047
1931	13,535,353	6,685,245	457,067	701,334
1932	18,234,683	7,306,721	764,905	613,939
1933	20,711,239	9,302,221	1,169,029	710,525
1934	20,597,615	10,033,567	550,947	616,915

Dyestuff

Through Governmental protection extending over many years, the Japanese dyestuff industry is now well established. Self-sufficiency will be only a matter of time, for within recent years this industry has been gaining momentum among the other industries of the country. Japan supplies 99 per cent. of all sulphuric dyes demanded domestically. Concerning ratios of high-grade dye supplies, Japan can supply 86 per cent. of miscellaneous dyes, 49 per cent. of acid dyes, 35 per cent. of mordant dyes and 26 per cent. of vat dyes for internal use. Coal-tar dyes were already exported in 1934 to the volume of 7,023 metric tons worth ¥4,259,000. Naphthol and Indanthrene dyes, which are not manufactured here, Japan gets from Germany. Consumption of these dyes is approximately 150,000 kin worth about ¥3,000,000. Research in producing these dyes is underway by the Mitsui

Mining and Japan Dyestuff Manufacturing Companies. Notwithstanding all this domestic activity, Japan still imports a large volume of dyes. Vat colour imports were especially notable because Mitsui Mining produced mostly artificial indigo. Imports of dyestuff in 1935 were ¥9,338,000 in value, and showed an increase of ¥191,000 over 1934, details of which follow:

IMPORTS OF DYESTUFF IN 1935

Colours	1934	1935
	(in ¥1,000)	
Basic	979	828
Direct	2,409	2,252
Acid	1,669	1,039
Mordant and intermediate	1,353	1,723
Vat	2,147	1,805
Others	594	729
Total	9,147	9,338

The domestic production of dyes during 1934 compared with the preceding four years and exports of Japan-made dyes since 1929, follow:

PRODUCTION OF SYNTHETIC DYESTUFFS

Year	Basic		Direct		Acid		Mordant	
	Qty in 1,000kg.	Value in ¥1,000	Qty in 1,000kg.	Value in ¥1,000	Qty in 1,000kg.	Value in ¥1,000	Qty in 1,000kg.	Value in ¥1,000
1929	347	1,255	608	1,316	217	671	36	177
1931	479	1,617	744	2,032	247	691	40	161
1932	608	2,415	1,243	3,589	425	1,513	91	263
1933	717	4,063	1,693	5,707	522	2,249	32	220
1934	765	4,266	2,153	6,816	554	2,091	178	750

PRODUCTION OF SYNTHETIC DYESTUFFS

Year	Sulphide Qty in 1,000kg.	Value in ¥1,000	Artificial indigo Qty in 1,000kg.	Vat Colours		Others and total
				Value in ¥1,000	Qty in 1,000kg.	
1930	6,745	2,445	66	229	12	7,891
1931	7,392	2,208	117	433	33	8,378
1932	10,609	4,602	193	771	45	15,360
1933	11,816	5,721	594	2,327	65	23,933
1934	12,144	5,107	1,724	3,303	23	27,446

PRODUCTION OF ANILINE AND INTERMEDIATES

	Aniline		Others and total in ¥1,000
	Qty in 1,000kg	Value in ¥1,000	
1929	3,214	2,050	6,931
1930	2,337	1,615	4,655
1931	2,127	1,242	4,333
1932	2,440	1,591	6,803
1933	2,995	2,600	10,057
1934	3,821	3,033	8,492

EXPORTS OF DOMESTIC DYESTUFFS

	Amount (Metric tons)	Value (¥1,000)
1929	811	360
1930	2,085	820
1931	2,011	509
1932	4,521	1,522
1933	6,125	2,895
1934	6,423	4,250
1935	8,882	7,304

The Government on March 16, 1933, raised the customs tariff on import dyes by 5 per cent. uniformly for protection of home products.

The Industry in 1935

The dyestuff industry has marked a considerable growth since the replacement of the gold embargo in 1931. Not only imports have been

checked, but Japanese products placed on foreign market. Domestic demand gained heavily because of the rayon manufacturing activity. All dyestuff making companies expanded their productive equipment. The Japan Dyestuff Manufacturing Company, the largest of the kind in Japan, was not exception to the rule. Its productive capacity at the end of 1935 was four and a half times that before the replacement of the gold embargo in 1931. Stocks were still short in spite of this, due to ceaseless orders coming from various sources. Japan Dyestuff is capitalized at ¥15,000,000, of which ¥11,000,000 is paid up. The company's business results for the last eight terms follow:

	Income on products (¥1,000)	Profit	Rate of profit against the income (per cent)
1st half, 1932	7,729	844	10.9
2nd half 1932	10,049	1,528	15.2
1st half 1933	13,825	1,701	12.3
2nd half 1933	16,298	1,927	11.8
1st half 1934	15,335	1,647	10.7
2nd half 1934	13,632	780	5.7
1st half 1935	17,711	1,956	11.0
2nd half 1935	18,544	1,732	9.3

Aluminium

The first aluminium manufacturing plant in Japan was erected at Omachi, Nagano prefecture, in December, 1933. The Japan Electric Industry Company, formerly known as Japan Iodine Company, runs it. This concern also built the first

alumina factory at Koyasu, Yokohama, in the spring of the same year. At the Koyasu factory Korean alum is used for making 20 metric tons of alumina a day. Alumina is sent to the Omachi factory, where 10 tons of aluminium is manufactur-

ed. The production cost of alumina is ¥1,000 per metric ton. This factory has yearly productive capacity of 3,600 tons, but Japan's annual demand is 10,000 to 12,000 tons, which used to be entirely imported from abroad. The capitalization of this company is ¥12,000,000. Another alumina manufacturing plan has been advanced. Anticipating completion of the Jitsugetsutan Power Station in June by the Taiwan Electric Power Company, an aluminium manufacturing company capitalized at ¥10,000,000 will be founded in Formosa in June, 1934. Establishment is taking place under joint management of the Mitsui, Mitsubishi, Sumitomo and Furukawa interests. Power totalling 50,000 kw. out of 100,000 kw. to be generated by the Jitsugetsutan Station will be supplied by the Taiwan Electric organization. Promoters of the prospective company have carried on exhaustive researches into the manufacture of aluminium during the past year and have found a practical method to produce it, which is however being kept an absolute secret. The factory will be erected in Takao province, Formosa, and material which is bauxite will be imported from Borneo, Korea, the Malay Peninsula and Brazil. Approximately 50,000 kw. of electricity will be had from Taiwan Power and in the first year the firm plans to have an output of 2,000 tons of aluminium, which will be boosted to 20,000 tons in the future. This metal will be supplied to various industrial plants throughout Japan. When the annual production reaches 20,444 ton level, Japan will be self-sufficient as regards this metal. In order to clinch their market in Japan, the International Aluminium Cartel, controlled by the Mellon interests in the United States, has reduced the selling price of aluminium in this country to ¥1,500 per

ton. The production cost of Japanese aluminium is estimated at about ¥1,200, or ¥1,300, a ton, while that of foreign aluminium is much lower. The Mitsubishi Mining Company has decided to go into the manufacture of aluminium zinc and oil, using hydrogenation process for the latter. The company will use its large profits on coal, copper and gold to finance the expansion. Experiments have been completed and the experts in charge are convinced of their ability to make each of the new enterprise a success. The aluminium industry will be the first to be tried, Korean alum shales will be used in a special process worked out by the company. A factory will be built near the Bibai Coal Mine, Hokkaido, which the company operates, together with a steam power generating station capable of 30,000 or 40,000 kw.

Imports of aluminium into Japan during the past five years have been as follows:

	Amount in kilogrammes	Value in yen
1931	5,214,420	3,812,000
1932	8,285,050	7,794,000
1933	7,238,760	10,233,107
1934	10,175,820	12,581,868
1935	13,401,480	18,362,317

Ingots occupied the major portion of imports. In 1934 these imports from Canada amounted to 3,153 metric tons, or 59 per cent., those from Norway 497 metric tons, or 9.3 per cent. and those from Switzerland 385 metric tons, or 7.2 per cent. In the same year imports of scrap from the United States amounted to 3,938 metric tons, or 81.4 per cent., and those from British India 483 metric tons, or 9.9 per cent. Recently, scrap has been replacing ingots. The South Manchuria Railway Company has decided to found the Manchuria Aluminium Company with a capitalization of ¥25,000,000, half

paid. The railway company will provide the initial amount and the balance will come from the Japan Electric Industry Company, now the largest aluminium maker in Japan, the Japan Aluminium Company of Formosa, the Sumitomo Aluminium Company and other concerns interested in the metal. The factory will be built at Fushun, Manchuria, and equipped to turn out 4,000 metric tons a year. Cost of production is estimated at ¥950 per ton, including the ¥72 import tariff into Japan. The 69th Diet session approved an increase of tariff on aluminium from 5 per cent. ad valorem per 100 kin to 25 and this has raised the tariff from ¥67.50 per ton to ¥280. There are now four aluminium manufacturing concerns in Japan. Their products are getting better and better. In 1934 the first-made aluminium was marketed by the Japan Electric Industry Company, output in that year totalling 664 metric tons and rising to 4,400 tons in 1935. In the latter year the Nichiman Aluminium Company and the Sumitomo Aluminium Company completed their equipment, so that production by the three companies was about 5,000 tons, or perhaps 30 per cent. of the demand in this country.

Figures on production capacity and capacity following completion of plant now under construction follow:

CAPACITIES RISING

Companies	Present	Increased
	capacity a year	capacity in the future
	(In metric tons)	
Japan Electric Industry	7,200	7,200
Nichiman Aluminium	1,500	5,000
Sumitomo Aluminium		
Reduction	1,500	7,000
Japan Alum/num	Being built	6,000
Total	10,200	25,200

The Japan Soda Company and one or two other concerns are planning embarking on the aluminium industry in the near future. It will be

difficult for Sumitomo Aluminium to step up its production to the upper figure this year, because of shortage of electric power and raw materials. Various circumstances are expected to prevent Japan Aluminium from going on production before the end of 1936. Another year or so must pass, it seems, before this country becomes self-sufficient in aluminium.

The market is said to be looking forward to severe sales competition between the domestic companies and the Aluminum Union Company of Canada, represented by the Mitsui Bussan Kaisha, the Mitsubishi Shoji Kaisha and the Asia Aluminum Company.

Japanese aluminium reduction companies have decided not to raise the prices of their products, considering that a large-scale price competition may be waged by foreign aluminium makers.

Stocks of imports in Japan at the end of 1935 were about 10,000 metric tons. These, if Japanese makers raise their prices of aluminium, will be marketed at a low price and, consequently, Japan-made aluminium may lose much of its market, it is believed by Japanese markets.

The International Aluminium Cartel is offering a cheap price even at present. The prevailing price in Tokyo is ¥1,720 per ton, which is ¥180 below the cost price. The cartel's prices in London, New York and Tokyo follow:

	Percentage of purity	Present market prices
London	98-9	¥1,716
New York	Over 99	1,772
Tokyo	99.5	1,720

If the London and New York prices are calculated on the basis of purity of 99.5 per cent., they are ¥1,900. The tariff and freight are added, the price in Tokyo must be ¥2,000. In spite of this, the cartel is cutting the price presumably with the ob-

ject of checking the growth of the Japanese aluminium manufacturing industry.

The cartel regulations provide that when an aluminium-producing country (as is the case with Japan) other than those belonging to the cartel raises its import tariff on aluminium, the burdens resulting from the measure shall be borne by the member

producers of the cartel.

Because of this provision, the cartel is not likely to raise the aluminium price even after the Japanese Government increases its tariff from ¥67.50 per ton to ¥280. The cartel members will bear the increased tariff burden of ¥213.50. No change, therefore, is likely to be made in the present price.

Pyrethrum

Hokkaido is noted for producing pyrethrum flower, which is used as material for anti-insect powder in foreign countries. Pyrethrum is manufactured into powder by American companies after it is exported there, where it is largely used for mosquito incenses and anti-bed bug powder. The direct shipment from Hokkaido was made in September, 1933. Pyrethrum was formerly exported through Kobé merchants, but, owing to inconveniences, the Hokkaido Government encouraged direct shipments from Hokkaido to America. The Hokkaido Government caused pyrethrum manufacturers to organize the Manufactured Pyrethrum Industrial Guild, as the first step to the export of manufactured pyrethrum abroad. Hitherto, this was exported in the shape of dried flower. As international goods, manufactured pyrethrum is steadily gaining ground. Under encouragement of

that Government, Hokkaido pyrethrum raisers are manufacturing it for direct export. Not only the United States but South Seas markets such as Saigon, Bangkok, Rangoon, Manila, Singapore, Sourabaya and Batavia, Indian markets including Calcutta and Bombay and European market such as London, Hamburg and Paris demand product. Wakayama prefecture is also noted for raising pyrethrum flower. Production and exports of pyrethrum in the last several years follow:

PRODUCTION AND EXPORTS OF PYRETHRUM

Year	Production		Exports	
	Qty in 1,000kg	Value in ¥1,000	Qty in 1,000kg	Value in ¥1,000
1930	5,979	3,249	—	—
1931	5,147	2,627	43,845	1,681
1932	5,107	3,730	94,678	4,752
1933	6,061	7,809	84,808	6,349
1934	7,798	10,574	93,848	7,447
1935	—	—	—	6,400

CHAPTER XXIV COMMUNICATIONS

General

The communications of the country are supervised by the Minister of Communications and a special account is established for the management of this business, beginning with the fiscal year 1934-1935. General condition of the business in Japan proper in 1933-1935 may be obtained from the following:

Post, telegraph and telephone officials and operatives (Sept. 30, 1935)	223,144
Post, telegraph and telephone offices (Sept. 30, 1935)	13,173

Ordinary mail routes (March 31, 1935) in km.	85,240
Ordinary mails accepted (1934-35)	4,674,986,977
Ordinary mails delivered (1934-35)	4,772,868,449
Parcel post routes (March 31, 1935) in km.	85,385
Parcels accepted (1934-35)	65,073,439
Parcels delivered (1934-35)	61,847,673
Telegraph routes (March 31, 1935) in km.	51,332
Telegraph lines (March 31, 1935) in km.	374,487
Telegraphs despatched (1934-35)	59,173,906
Telegraphs received (1934-35)	61,591,759
Telephone subscribers (Sept. 30, 1935)	861,397
Telephone routes (March 31, 1935) in km.	69,547
Telephone lines (March 31, 1935) in km.	6,331,707
Telephones (March 31, 1934)	892,191
Telephone messages (1933-34)	3,564,536,772
Income from postage and fees (1934-35)	¥269,575,999
Business expenditure (1934-35)	¥175,360,316

The Postal Service

Historical Survey

The present state postal service system was established in 1871, between Tokyo and Osaka. In August of that year, post offices were opened in Niigata, Hakodaté, Kobé, Nagasaki, and Yokohama. In December a new postal route was established between Tokyo and Nagasaki, connecting the two cities in 7 days and 17 hours. In May, 1872, the postal service between Yokohama and Tokyo was greatly improved by the establishment of five deliveries a day, and by July the service was extended to all the cities and towns of importance throughout the country, except a part of Hokkaido.

Foreign Mail Opens In March, 1872, a foreign mail service was opened at the same time as the establishment of official postal regulations. In those days, foreign mail matter

in Japan was handled with the aid of the British, American, and French post offices in Yokohama, Kobé and Nagasaki. Soon after the conclusion of the America-Japan Mail Service Treaty in 1873, the American post offices were withdrawn from this country, and Japan was thus placed on an equal footing with the U. S. A. as regards the mail service between the two countries. In 1877, an arrangement was made with twenty-five countries participating in the International Mail Service Treaty. Thereupon, the British and the French post offices were also withdrawn from this country.

The post offices were at first classified into five grades, and in March 1886, they were classified into three as at present. In view of the development of telephone and telegraph business, the authorities introduced a revision in the system of the Communications Department in

1903, and divided post offices into post, telegraph, and telephone offices each of them being classified into 1st, 2nd and 3rd, or 1st and 2nd in the case of telephone offices. With the rapid increase in the amount of mail matter and telephone and telegraphic messages, the regulations of the Communications Department as to the number and kind of offices, were extended from time to time, and at present there are offices in warships, steamers, trains, etc., in addition to the network throughout the country.

The air mail service was commenced in 1929 with the establishment of the Japan Air Transport Company in April of the same year.

The Growth The rapid growth of the postal service in the early years is illustrated by the following statistics:

Year	No. of P. O.
1871	180
1872	1,160
1873	1,501
1874	3,245
1882	5,527

Following the introduction of a revision in the postal service regulations in 1883, some of the offices were eliminated, the number being reduced to 4,088 by the end of 1889. But the steady development of postal business necessitated an increasing number of offices as the following figures for Japan proper show:

On March 31 of	No. of P. O.
1907	5,485
1922	6,709
1923	8,477
1924	8,546
1925	8,633
1926	8,705
1927	8,916
1928	9,114
1929	9,393
1930	9,690
1931	9,954
1932	10,208
1933	10,322
1934	10,511

Post offices are classified into three grades, namely 1st, 2nd and

3rd, the 1st being, side by side with 2nd and 3rd offices, in such important places as Tokyo, Osaka, and other leading cities. The 2nd and 3rd are in smaller cities, towns and villages throughout the country. Those of the 1st or 2nd grade are government offices, under direct government management. In post offices of the third class, business is conducted on the contract system.

Its Business

In addition to ordinary matters relating to post and telegrams, the post offices in Japan receive taxes on behalf of the various tax authorities and pay pensions, annuities, etc. on behalf of the Treasury. Since 1906 New Year's greeting cards have been handled separately from ordinary mail matter with a view to relieving congestion. Such mail matter is accepted by all post offices from December 15 until 29 of the same month for delivery on New Year's day.

Ordinary mail matter is delivered 5 or 6 times daily in Tokyo, Osaka, and Kyoto, and 4 or 5 times in other large cities, where there are 1st class offices. In smaller cities, the 2nd class offices deliver 3 or 4 times a day. In towns and villages where they have 3rd class offices, mail matter is delivered twice a day only. The number of collections is the same as that of delivery in most cases.

The parcel post service was started in 1892, the first arrangement as regards foreign connections being made with Hongkong in 1879. The scope of international service was gradually extended, and covers almost all treaty countries at present.

Statistical Tables In the following are given a number of tables relating to the volume of business, and its growth, handled by the post offices:

NUMBER OF POST OFFICES (September 30, 1935)

	Japan Proper	Taiwan	Karafuto	Chosen	Kwantung Leased Territory	South Sea Islands
1st Class	93	15	—	—	—	—
2nd Class	221	10	4	102	59	9
3rd Class	10,034	162	74	—	—	—
Minor offices	717	—	—	22	178	—
Total	11,125	185	78	124	237	9

VOLUME OF MAIL MATTER HANDLED IN JAPAN PROPER

	Ordinary mail	Parcel post	Total	Percentage of Increase
1892-1893	{ Despatched 277,805,743 Received 278,598,069	{ 40,755 38,000	{ 277,846,498 278,636,069	{ 10.33 —
1897-1898	{ Despatched 550,915,742 Received 539,540,474	{ 4,108,488 4,060,796	{ 555,023,230 543,601,270	{ 9.98 9.51
1907-1908	{ Despatched 1,357,447,195 Received 1,346,523,695	{ 17,676,745 16,567,155	{ 1,375,123,939 1,363,092,850	{ 6.21 5.65
1912-1913	{ Despatched 1,630,394,998 Received 1,594,850,576	{ 24,276,991 23,008,666	{ 1,654,671,989 1,617,859,242	{ 5.28 6.03
1921-1922	{ Despatched 3,992,769,865 Received 3,982,309,281	{ 48,758,863 45,890,804	{ 4,041,528,718 4,028,199,585	{ 2.03 1.87
1926-1927	{ Despatched 3,974,192,623 Received 3,906,474,525	{ 58,258,644 55,852,079	{ 4,032,451,267 3,962,326,604	{ 2.49 2.66
1929-1930	{ Despatched 5,096,611,368 Received 5,046,099,425	{ 63,650,583 60,654,644	{ 5,160,261,951 5,106,754,069	{ 9.55 (-)9.70
1930-1931	{ Despatched 4,409,551,651 Received 4,437,939,812	{ 60,067,753 57,724,887	{ 4,469,619,404 4,495,664,693	{ (-)0.02 0.18
1931-1932	{ Despatched 4,409,202,875 Received 4,532,477,443	{ 58,201,931 55,654,599	{ 4,548,404,806 4,588,132,042	{ 1.08 (-)1.35
1932-1933	{ Despatched 4,253,259,031 Received 4,294,100,596	{ 58,472,313 54,849,774	{ 4,312,231,344 4,348,950,370	{ (-)0.36 0.34
1933-1934	{ Despatched 4,357,325,600 Received 4,402,200,835	{ 61,240,342 57,762,972	{ 4,418,565,942 4,459,963,807	{ 0.25 0.26
1934-1935	{ Despatched 4,674,986,977 Received 4,772,868,449	{ 65,073,439 61,847,673	{ 4,740,060,406 4,834,716,122	{ 0.73 0.84

VOLUME OF MAIL MATTER HANDLED DURING 1934-35 IN THE EMPIRE

	Japan proper	Taiwan	Karafuto	Chosen	Kwantung Leased Territory	South Sea Mandated Islands
Ordinary mail						
Domestic mail						
Despatched	4,636,110,883	77,534,962	19,963,882	291,019,972	152,475,314	1,530,362
Collection post	7,015,143	145,239	10,932	432,026	22,536	—
Received	4,732,473,706	92,453,253	28,318,163	318,753,595	150,532,720	2,386,482
Foreign mail						
Despatched	35,876,094	676,278	(Foreign mail included)	2,769,436	986,999	11,767
Collection post	—	—	—	—	—	—
Received	40,394,743	632,859	—	2,503,939	471,458	15,746
Parcel post						
Domestic						
Despatched	64,308,999	650,768	232,425	2,403,376	787,056	13,155
Received	61,685,792	1,171,277	588,269	2,529,911	1,760,736	50,486
Foreign						
Despatched	764,430	10,298	(Foreign mail included)	11,858	54,768	61
Received	161,881	2,605	—	48,004	29,746	97
Total						
Despatched	4,740,060,406	28,872,306	20,194,247	246,204,642	154,304,137	1,555,346
Collection post	7,015,143	145,239	10,932	432,026	22,536	—
Received	4,834,716,122	94,259,994	28,906,432	324,835,449	152,794,660	2,452,811
Collection post	—	288,955	62,862	623,119	110,260	—

Postal Money Order can hardly be included into the business of communications. It is, however, one of the important lines of business handled by the post office for the con-

venience of the large mass of people. The number and amount of postal money orders handled during 1934-35 are given below :

POSTAL MONEY ORDERS IN 1934-35

Territory	Issued		Paid	
	No.	Amount (in yen)	No.	Amount (in yen)
DOMESTIC				
Japan Proper	35,371,607	723,592,083	37,539,575	784,338,121
Taiwan	1,085,415	29,147,001	637,054	17,820,156
Karafuto	519,946	16,256,584	239,898	9,369,527
Chosen	3,801,904	121,982,331	3,409,309	110,924,703
Kwantung Leased Territory	1,586,178	50,869,241	560,279	19,903,990
South Sea Mandated Islands	81,543	6,784,830	17,350	5,890,727
FOREIGN				
Japan Proper	32,508	1,369,892	216,755	6,848,297
Taiwan	12,988	379,414	2,442	83,650
Karafuto	61	2,757	371	17,379
Chosen	14,269	552,562	43,281	1,043,249
Kwantung Leased Territory	4,267	103,032	28,111	671,385
South Sea Mandated Islands	31	2,199	77	2,779

The number of postal money orders issued in Japan proper has been on the constant increase since 1875 when the business was first opened

while the amount reached its highest mark in 1926 and continued decrease for five years until it began to regain the upward tendency in 1933.

POSTAL MONEY ORDERS IN JAPAN PROPER

Piscal Year	Number	Increase (in percentage)	Amount (in yen)	Increase (in percentage)
1874-75	115,703	—	2,123,146	—
	unknown	—	unknown	—
1896-97	5,522,282	461.28	50,655,614	228.59
	5,708,934	—	53,913,402	—
1901-02	8,872,471	6.07	88,366,758	7.44
	9,141,823	6.01	95,624,097	7.74
1906-07	13,764,799	5.51	161,451,080	8.27
	14,819,319	6.21	188,256,859	9.69
1911-12	16,623,165	2.08	216,825,773	3.43
	17,925,194	2.10	240,099,681	2.75
1915-16	20,014,404	2.04	279,364,560	2.88
	21,538,637	2.02	306,299,553	2.76
1920-21	27,298,164	3.64	696,274,035	14.92
	28,892,790	3.41	754,893,817	14.65
1923-26	30,400,558	1.14	749,757,291	0.77
	31,888,323	1.04	797,891,087	0.57
1929-30	31,233,521	0.27	673,278,926	-1.02
	32,820,607	0.29	715,000,527	-1.04
1931-32	31,577,079	0.21	654,639,462	-0.28
	33,674,636	0.26	700,624,150	-0.20
1932-33	33,360,209	0.47	683,634,657	0.44
	35,345,114	0.50	735,961,393	0.50
1934-35	35,371,607	0.60	723,592,083	0.58
	37,539,575	0.62	784,338,121	0.66

Telegraph Service

Telegraph service in Japan was started in August, 1869, but this was for Governmental messages exclusively. Public telegraph service was started in September of the same year between Tokyo and Yokohama. Telegrams in European languages were despatched for the first time in April, 1870. In August of the same year Osaka and Kobé began to exchange telegraph messages. In June, 1871 the laying of the submarine cable between Nagasaki and Shanghai was completed. In February, 1873, aerial lines connected Tokyo and Nagasaki and telegraph service for districts along the lines was opened. In January, 1879, Japan entered the international telegraph association. With revisions

of rules and laws in subsequent years the business was started on a fair and steady road of progress. Wireless telegraph service was installed in 1908, and telegraphic picture transmission was undertaken from August, 1930.

Statistics on the telegraph services follow :

TELEGRAPH STATIONS IN JAPAN PROPER

Year	Number	Increase in the year
1929-1930	7,011	175
1930-1931	7,631	620
1931-1932	7,709	78
1932-1933	7,813	104
1933-1934	7,942	129
1934-1935	8,215	273
1935 (September)	8,662	—

NUMBER OF TELEGRAPH OFFICES, SEPTEMBER 30, 1935

	Japan proper	Taiwan	Karafuto	Chosen	China	Kwantung Leased Territory	South Sea Islands
1st class	4	—	—	—	—	—	—
Wireless	—	4	—	—	3	23	—
2nd class	42	—	—	7	—	—	—
Wireless { Land	16	3	—	—	—	26	—
{ S. S.	20	1	—	—	—	—	—
Post and telegraph offices	6,985	173	77	755	—	14	9
Minor offices	1,631	33	11	99	—	49	1
Wireless { Land	14	3	1	—	—	48	—
{ S. S.	655	7	—	—	—	—	1
Total	8,662	210	88	861	3	112	10

TELEGRAMS HANDLED IN 1934-1935

	Domestic messages	Foreign messages
Japan Proper (Japan—Manchuria included)	{ Despatched 59,173,906 { Delivered 61,591,759	1,262,539 1,272,011
Taiwan	{ Despatched 1,642,817 { Delivered 1,688,590	28,733 39,304
Karafuto	{ Despatched 915,991 { Delivered 869,619	194 851
Chosen	{ Despatched 7,136,394 { Delivered 7,060,630	12,029 18,462
P. O. in China	{ Despatched 28,531 { Delivered 30,200	161,664 142,510
Kwantung Leased Territory	{ Despatched 3,662,838 { Delivered 3,315,061	198,969 227,865
South Sea Islands	{ Despatched 214,476 { Delivered 184,282	1,773 425

NUMBER OF TELEGRAMS HANDLED BY INLAND POST AND
TELEGRAPH OFFICES
(1929-1935)

	Domestic	Foreign	Total	Increase or decrease in %
1929-30 { Despatch	63,905,977	1,294,828	—	—
{ Arrival	66,507,676	1,336,570	—	—
1930-31 { Despatch	57,382,506	1,183,861	58,566,367	de 1.51
{ Arrival	59,925,616	1,224,974	61,150,590	de 1.23
1931-32 { Despatch	55,507,280	1,193,654	56,700,934	de 0.21
{ Arrival	57,784,498	1,224,442	59,008,940	de 0.22
1932-33 { Despatch	54,065,046	1,254,430	55,319,476	de 0.24
{ Arrival	56,281,163	1,243,925	57,525,088	de 0.25
1933-34 { Despatch	56,529,921	1,237,193	57,767,114	in 0.44
{ Arrival	58,843,016	1,242,847	60,085,863	in 0.45
1934-35 { Despatch	59,173,906	1,212,539	60,486,445	in 0.46
{ Arrival	61,591,759	1,272,011	62,863,770	in 0.46

LENGTH OF INLAND TELE-
GRAPH LINES
March 31, 1935

	Km.	As compared with the previous year
Land lines		
Aerial lines, routes	35,240	- 343
" " lines	234,595	+ 405
Overhead cables,		
Routes	91	+ 5
Cores	22,234	+ 395
Underground lines		
Routes	728	+ 5
Cores	99,316	+1,798
Submarine cables		
Lines	15,273	+ 2
Cores	18,342	+ 11

PNEUMATIC TUBES
1933-1934

	Metre	As compared with the previous year
Length of routes	70,308	+ 532
Length of tubes	142,224	+ 259

FREQUENCIES AND HOURS OF FAULTS
OF INLAND TELEGRAPH
1933-1934

Land and underground lines		
Contacts	{ Frequency	4,750
	{ Hour	22,760
Earth	{ Frequency	3,985
	{ Hour	21,574
Disconnection	{ Frequency	2,566
	{ Hour	9,722
Leakage	{ Frequency	499
	{ Hour	7,074
Other	{ Frequency	790
	{ Hour	1,663
Total	{ Frequency	12,500
	{ Hour	65,093
As compared with the previous year	{ Frequency	+ 1,485
	{ Hour	+12,059
Submarine Cables	{ Frequency	97
	{ Hour	139,622
As compared with the previous year	{ Frequency	+ 21
	{ Hour	- 54,452

TELEGRAPHIC APPARATUSSES
AND BATTERIES
1933-1934

Apparatuses	
Telephones for telegraph service	4,691
Ink writers	4
Sounders	5,798
Automatic telegraphs, duplex	165
Undulator and siphon recorders	15
Printing duplex telegraphs, Japanese	32
Printing automatic duplex telegraph, alphabet	4
Double-duplex printing telegraphs	7
Phototelegraphs	4
Telegraph repeaters	167
Automatic time switch	9
Others	112
Total	11,026
Batteries	
Primary	100,940
Secondary	7,225
Total	108,165

Wireless Telegraph Service

The study of wireless telegraphy was begun in Japan in 1896, or one year after the invention of wireless telegraphy by Marquis Marconi. In 1903, an experiment was made between Nagasaki and Taiwan by the Communications Department, with satisfactory results.

The First Station In November 1906, Japan sent her delegation to Berlin to represent her at the First World Conference on Wireless Telegraphy. In May, 1908, the first land wireless telegraph station was established in Choshi, (Chiba pre-

ecture), whilst the first marine wireless telegraph equipment was set up on the Toyo Kisen liner "Tenyo Maru" in the same year. In July, 1908 wireless telegraph stations were established at Ohsezaki in Nagasaki prefecture, Shionomisaki in Wakayama prefecture and Tsunojima in Yamaguchi prefecture. In December, 1908, a wireless telegraph station was established at Otchishi in Hokkaido. At the same time sets were installed on some of our ocean liners. Japan was thus placed on a more or less secure foundation in the sphere of wireless telegraphy.

The circulation of regulations for private wireless telegraph offices in October, 1915, greatly facilitated the healthy growth of the business, and the service was extended to wider areas. It was utilized for steamship communication, and contact was also made with steamers and between ships and land stations, and also between aeroplanes and steamers or stations on land. With the enforcement of a law for the establishment of wireless sets on steamers, the number of stations rapidly increased.

International Communication The extension of wireless communication with other countries started in Japan in 1915, when messages were exchanged between Otchishi station and Petropavlovsk of Kamchatka. In 1916, the Funabashi station succeeded in exchanging messages with Hawaii. In 1920, the Iwaki station was established for handling messages between Japan and America. In 1925, the Government issued a law establishing the Japan Wireless Telegraph Company with a capital of ¥20,000,000, with a view to becoming absolutely independent of foreign telegraph companies, with whose co-operation Japan had been exchanging wireless messages with all other countries, except America,

Russia, and China.

The Government transferred to the Company its Iwaki radio plant and the ground at Yosami and Yokkaichi which it was holding with the intention of erecting radio stations for the services with countries in Europe.

The Company has, according to the Law, to equip and manage the facilities and then rent them to the Ministry of Communications in consideration of a subsidy. Although many improvements were introduced at considerable outlay over all former installations of Iwaki radio plant by the Company, the advent of short-wave methods compelled it to close the stations upon the completion of its new stations at Oyama and Fukuoka.

The Company's circuits now offer from Nagoya direct communication service with England, France, Germany, Italy, Switzerland, Poland, Holland, Mexico and Brazil; and from Tokyo the circuits reach out to North and South America, Hawaii, the Philippines, French Indo-China, Siam, Dutch Indies, British India, and Syria. The Company has an extensive plan of development which will in future place Japan in direct touch with all the important countries of the world.

The Company now places the following stations in daily twentyfour hour service:

(a) Transmitting station at Oyama, near Tokyo.

Receiving station at Fukuoka, near Tokyo.

(b) Transmitting station at Yosami, near Nagoya.

Receiving station at Yokkaichi, near Nagoya.

Stations (a) are used for direct communication with San Francisco, Buenos Aires, Honolulu, Manila, Saigon, Bangkok, Bandoeng (Java), Bombay and Beirut (Syria); and stations (b) for direct communication with London, Paris, Berlin,

Rome, Geneva and Warsaw.

Messages originating in or destined to places beyond those mentioned above are retransmitted at those particular points.

Number of telegrams dealt with at wireless telegraph offices in recent five years was as follows:

		Domestic	Foreign
1928-29	Despatched	343,540	48,803
	Received	209,044	23,296
1929-30	Despatched	379,297	49,413
	Received	282,954	23,160
1930-31	Despatched	376,953	56,687
	Received	302,153	25,099
1931-32	Despatched	386,989	53,929
	Received	290,559	24,097
1932-33	Despatched	387,368	50,403
	Received	262,587	22,444
1933-34	Despatched	426,705	53,999
	Received	283,616	26,110

Telephone Service

According to the latest statistics, the number of the telephone exchange offices in Japan proper was 4,786 and that of subscribers 806,515.

The following tables show the development and present scope of the telephone service:

NUMBER OF TELEPHONE EXCHANGE AND MESSAGE OFFICES

Sept. 30, 1935

	Exchange offices	Other offices
Japan proper	5,086	6,800
Taiwan	115	170
Karafuto	29	86
Chosen	209	748
Kwantung Leased Territory	34	92
South Sea Islands	1	—

NUMBER OF INLAND TELEPHONE SUBSCRIBERS

	Total subscribers	Applicants for subscription
1928-29	655,721	195,332

NUMBER OF TELEPHONE SUBSCRIBERS IN THE EMPIRE, 1933-1934

Japan Proper	Subscription
Tokyo Bureau	239,393
Nagoya Bureau	113,771
Osaka Bureau	212,473
Hiroshima Bureau	67,548
Kumamoto Bureau	72,780
Sendai Bureau	59,054
Sapporo Bureau	31,517
Total	796,538
Taiwan	15,814
Karafuto	5,130
Chosen	36,229
Kwantung Leased Territory	23,235
South Sea Islands	569

NUMBER OF TELEPHONE MESSAGES IN JAPAN PROPER

Year	In the same subscription districts			With other districts	
	Messages between subscribers	Hours of conversations at offices and public telephones	Requests for calling out	Hours of conversations	Requests for calling out
1929-30	2,881,123,698	24,057,430	38,829	155,614,560	2,083,377
1930-31	2,992,928,336	34,242,737	37,399	167,168,858	1,962,930
1931-32	3,111,359,022	34,755,091	37,131	180,032,609	1,954,216
1932-33	3,208,443,375	35,444,101	38,537	190,635,368	1,929,063
1933-34	3,564,536,772	36,949,570	43,165	211,604,540	2,003,246

NUMBER OF TELEPHONE MESSAGES IN THE EMPIRE, 1932-1933

	In the same subscription district			With other district	
	Messages between subscribers	Hours of conversation of office and by public telephone	Requests of call	Hours of conversation	Requests of call
Japan proper	3,208,443,375	35,444,101	38,537	190,635,368	1,929,063
Taiwan	77,639,368	89,161	546	2,472,413	48,880
Karafuto	24,328,144	26,322	—	543,838	22,977
Chosen	206,445,318	63,568	168	3,128,185	276,955
Kwantung Leased Territory	295,106,438	166,297	4,316	1,540,268	26,688
South Sea Islands	2,255,542	22	—	—	—

FREQUENCIES OF FAULTS WITH URBAN TELEPHONES IN JAPAN PROPER, 1933-1934

		As compared with the previous year
Faults in exchange offices	528,904	+ 36,272
.. subscribers	571,567	+ 37,618
.. on routes	321,562	+ 45,183
Total	1,427,033	— 119,073
Faults per 1 subscriber	—	—

LENGTH OF TELEPHONE LINES IN THE EMPIRE 1934-35

	Japan proper							South Sea Islands
	Km.	As compared with the previous year	Taiwan	Karafuto	Chosen	Kwantung Leased Territory		
Land lines								
Aerial lines, routes	58,868	+ 1,353	3,395	290	9,471	2,122	27	
.. lines	595,594	+ 7,216	28,394	5,619	59,225	39,812	94	
Overhead cables, routes	6,022	+ 857	157	31	17	314	3	
.. cores	1,783,115	+124,554	18,060	5,198	39,072	59,851	375	
Underground lines								
Routes	3,594	+ 224	22	4	43	22	—	
Cores	3,944,505	+152,728	35,417	3,353	55,662	44,941	—	
Submarine cables								
Lines	1,063	+ 93	—	—	—	—	—	
Cores	8,493	+ 1,216	—	—	—	—	—	

Figures for Japan proper are of March 31, 1935 while those for others are of 1933-34.

NUMBER OF TELEPHONE APPARATUSES AND BATTERIES IN THE EMPIRE, 1933-1934*

	Japan proper							South Sea Islands
	As compared with the previous year	Taiwan	Karafuto	Chosen	Kwantung Leased Territory			
Manual telephone exchanges	11,902	+ 43	254	1	—	198	1	
Automatic telephone exchanges	2,527	+ 253	1	85	841	197	2	
Telephones	892,191	+31,257	17,620	5,658	43,648	24,695	354	
Batteries	900,476	+23,650	24,516	5,999	71,446	17,171	470	

Wireless Telephone Service

The first experiment with wireless telephony in Japan was made in 1911 by the Communications Department with very satisfactory results. It was in 1923, however, that the service was opened for public use between Kobé city and steamers in the harbour. In 1926, this service was extended to Moji. The result being satisfactory, the Government decided further to extend the service and in December, 1932, the International Telephone Company, with a capital of ¥10,000,000, was established through the solicitation of the Communications Ministry to build up stations for the use of the Government and private bodies. This was done to facilitate wireless telephone service between Japan and the world at large, Japan's colonies and ships on the waters. The transmitting station of the company is established at Nazaki, Ibaraki prefecture, and the receiving station at Komuro, Sai-

tama prefecture, and these stations are connected each other and with the Tokyo Central Telephone Office by cables. Wireless telephones are now available between Tokyo, Nagoya, Kanazawa, Kobé, Osaka, Kyoto, Yokohama, Toyohashi, Nara, Himéji, Shimonoséki, Fukui, Fukuoka, Yawata, Wakamatsu, Nishinomiya, Amagasaki and Suma. The service has been opened between Formosa and Tokyo, on June 20, 1934.

In 1934-35 international wireless telephone service has been successively opened between Japan and Manchoukuo, U.S.A., Canada, Mexico, Cuba, Philippines, Dutch East Indies, Sumatra, England, and Germany. The service with other 27 European countries was opened in July, 1935, with China in February, 1936, with Cape Town and Brazil in April, 1936, and with Saigon in May, 1936.

Telephotograph Service This service is only available between Tokyo, Osaka and Formosa.

Radio

Radio broadcasting in Japan is under the control of a single organization, the Broadcasting Corporation of Japan, which in turn is supervised by the Ministry of Communications. Programmes are subjected to strict censorship and nothing that might harm the interests of the country and its people is allowed to go on the air. Advertising of all sorts is prohibited. Political speeches cannot be included in the daily programmes. Even election campaign speeches and Diet proceedings cannot be broadcasted. (See Chapter XXXVII.)

The First Programme The first radio programme in Japan went on the air on March 22, 1925, five years after the world's first regular commercial broadcasting by the station

KDKA, East Pittsburgh, Pennsylvania. The station, using the call letters JOAK, was in Tokyo, and it had a power of only 500 watts. This station, established temporarily at Shibaura, on the water front of Tokyo Harbour, was replaced in July by a 1 kw. station at Atagoyama, a hill in the southern part of Tokyo. In the difficult times following the great earthquake and fire of September, 1923, which laid waste a greater part of Tokyo, the radio played an important part in comforting and encouraging the citizens who were working hard to rebuild their city and their homes.

Shortly afterwards, small stations were established in Osaka and Nagoya, which form with Tokyo the three largest population centres.

The engineers in charge of these stations were sceptical about their success. There was no assurance that the Japanese public would respond by buying radio sets and listening in, or would like the programmes once they were heard. These fears, however, were groundless. For a time there were not enough receiving sets in the stores to meet the demand. Instead of a novelty, the radio became a daily necessity. Elated at their success, the promoters worked out a plan to centralize all the broadcasting in the country, which was heartily approved by the Ministry of Communications. Before the end of a year, the stations in Tokyo, Osaka and Nagoya were merged, and the Broadcasting Corporation of Japan was formed to assure nationwide co-operation in meeting the demand for more efficient stations and better programmes.

The Subscribers The association started with 338,000 subscribers; on March 31, 1936, it has 2,422,111 in Japan proper or 17.9 in 100 of households. The present fee is ¥0.50 for each receiving set.

The Stations The development so far made has been in two directions, an increase in the number of stations and improvement in programmes. In the beginning there were three stations. Now there are 25, and several more are to be added. As the association was meant to be nationwide, every section of Japan had to be considered. The directors called in the engineers and explained the problem. Broadcasting had to be available in any home anywhere in the country. The engineers pointed out that the geographical formation of Japan, which stretches more than 3,380 kilometres from Hokkaido to Taiwan, broken by rugged mountains, made it advisable to broadcast from a number of stations suitably

located. The country was divided into seven districts, in each of which a 10-kw. station has been built. These—in Tokyo, Osaka, Nagoya, Hiroshima, Kumamoto, Sendai and Sapporo—are the key stations. The remaining 18 are relay stations, ranging in power from 300 watts to 3 kilowatts. Their purpose is to bring the programmes of the seven key stations closer to the listeners, saving them the expense of powerful receiving sets. For double broadcasting, the power of the Tokyo, Osaka and Nagoya stations was increased to 20 kilowatts.

Overseas Broadcast The Overseas Short-wave Broadcast has been fixed as follows: for Europe and the Pacific Ocean 2:00-3:00 P. M.; for American continents and the Atlantic Ocean 6:00-7:00 A. M. on Tuesdays and Fridays.

These broadcasts will be sent out from the Nasaki Transmitting Station of the Japan International Telephone Company.

Location:—Nasaki, Ibaraki Prefecture, Japan. **Position, Latitude** 36° 10' 44" North; **Longitude** 139° 51' East.

Transmitter—20 kw.

Wave length and Frequency:—JVH 20.55 metres 14,600 kilocycles.

Any change in wave length and frequency will be announced during the course of the regular daily broadcast.

Daily broadcast programme will be as follows:

Opening announcement and résumé of the day's programme	10 minutes
News in English	10 minutes
Music entertainment, lectures, broadcasts from the scene of actual happenings or from the leading theatres and centres of amusement	30 minutes
News in Japanese	10 minutes
Resumé of the following day's programme and concluding announcement	4 minutes
National Anthem	3 minutes
These make up the full one hour programme on the Overseas Broadcast.	

In the near future the Tokyo station is to be increased to a power of 150 kilowatts and other stations to 100 kilowatts.

The extension programme also includes the construction of a large building for each of the studios in Tokyo and Osaka, which will incorporate the latest type of broadcasting equipment. These two cities will thus continue to be the broadcasting centres of the Empire.

The B. C. J. The Broadcasting Corporation of Japan was organized on

August 20, 1925. The organization, being a public service corporation with no desire for profit, obtained a special charter with right to control and operate the whole broadcasting service in Japan and to undertake any scheme for the promotion of radio science, although all work is subject to the supervision of the Ministry of Communications. The corporation is headed by Mr. Kenzo Iwahara, former chairman of the Board of Directors of the Tokyo Broadcasting Station.

CHAPTER XXV

LAND AND AIR TRANSPORTATION

State Railways

Historical Background

Japan's railway projects date from 1869, when the Government formed a plan to lay a trunk line linking Tokyo with Kyoto and Kobé, together with some branches to Yokohama and Tsuruga, a port on the Japan Sea. As the first step, half a million yen was sanctioned for the work between Tokyo (Shimbashi) and Yokohama, but the State Treasury was in no position to find this amount, while private capital declined to venture into this novel field of investment. It was at this time that an Englishman, Horatio Nelson Lay, by name, came forward with a proposal to furnish the required funds. The terms offered by him were accepted and a Japanese loan for one million sterling was placed on the London market. With the arrival of a British engineering corps and materials, the first rod was dug on the 28.962 kilometre Shimbashi-Yokohama section in March, 1870, and on the 32.18 kilometre Kobé-Osaka section in November, 1870. The gauge adopted for these lines was one of 1.067 metres, which has later become the standard gauge of the Japanese railways.

Tokyo-Yokohama and Other Lines
The work between Shimbashi and Yokohama was completed in September, 1872, while the Kobé-Osaka line was opened to traffic in 1874 and its further extension to Kyoto in 1877. These sections have practically formed the nucleus of what now con-

stitutes the Tokaido Line, one of the main arteries of railway traffic in Japan. In 1880, the Kyoto-Otsu section was completed and in 1884 a further extension with a length of 41.834 kilometres between Tsuruga and Nagahama, a town along Lake Biwa, was completed and opened to traffic in pursuance of the railway idea of linking up the Pacific and the Japan Sea. Meanwhile, a survey was made on the Otaru-Horonai section in Hokkaido, where colonization work was being strenuously encouraged. Construction of this section was soon undertaken and the 88.495 kilometre length was opened to business in 1882, thus bringing the total length of railway under Government ownership toward the close of 1884 to 185.035 kilometres.

Private Lines About this time the Government was in financial difficulties and the building of State railways practically came to a standstill except for a few extensions. It was at this time that, not being in a position to undertake the work itself, the Government began to encourage private enterprise, the encouragement mostly being in the shape of subsidies. Under these circumstances, many private railways were built in rapid succession, the most notable among them being the Nippon Railway, the Sanyo Railway, the Kyushu Railway and the Hokkaido Colliery Railway. The total length of line thus built by private capital in the ten years between 1881 and 1891 aggregated 1,874.485 kilometres, a length more

than double that of the State which did not exceed 886,559 kilometres by the end of 1891.

The Trunk Line Prior to this, the Government decided to lay a trunk line through the Nakasendo, the old mountainous highway of Central Japan, but in view of engineering difficulties along this line it was subsequently abandoned in favour of the level region of the Tokaido. Work on the new route was finished in July, 1889, whereby a through service was opened for a distance of 611.42 kilometres between Tokyo and Kobé. Then a branch to Yokosuka was opened and a 160.9 kilometres section between Takasaki and Naoetsu was completed with the exception of 9.654 kilometres over the Usui Pass. This difficult section, for which the Abt rack rail system was adopted, was not opened for service until 1893.

The Railway Construction Law In view of the industrial progress being made in the country there was an urgent demand for the speedy construction of more railways. The entire length of Japanese railways at that time amounted to only 2,574.4 kilometres and as many as 5,792.4 kilometres were needed to complete the railway network over the whole country. The bulk of these contemplated lines was in remote districts with no prospect of immediate profit, and on that account did not appeal to private enterprise. These circumstances showed both the Government and the public the advisability of State acquisition of private lines and opinion was further strengthened by the financial failure of some of the private concerns. In view of this, in 1892, the Railway Construction Law was passed and the Government set to work constructing important lines. The law embodied a comprehensive

programme of railway building and contained the guiding principles by which the railway system of Japan was founded. At the same time the matter of consolidating the different lines into one complete system was being studied by a committee of enquiry appointed by the Government. The acquisition of private railways was accomplished in October, 1907, the subsidiary businesses being taken over at the same time. Immediately after nationalization the State Railways were organized under a Railway Bureau, which was directly responsible to the Cabinet. But in May, 1920, a separate Department of State was created to deal with railway affairs and the Minister of Railways was appointed to control it.

Railway Network

The law of 1892 authorized the Government to build certain specified lines within a certain limit of time, and also to buy up such private railways as were judged necessary for the completion of a unified system. Pursuant to this programme the State Railways proceeded with the work of construction and in 1906 and 1907 purchased 17 companies' lines to a total length of 4,547.034 kilometres, thereby bringing under national control all the railway lines in Japan proper, with the exception of feeding lines of local importance. In 1922 after a careful survey of the State lines the Railway Construction Law was modified and some new lines were added to the original programme. At the same time it was decided that, pursuant to the new law, such local lines as formed a connecting link between the State lines projected or those lines considered necessary for completing a unified national railway system be purchased.

Lines not yet Opened to Traffic

The total length of State lines not yet opened to business on March 31, 1934, was 2,629,996 kilometres, consisting of 1,266,589 kilometres of lines under construction and 1,363,407 kilometres of lines sanctioned for construction but not yet started within the year. As compared with the preceding year the lines under construction increased by 168,213 kilometres while the lines not yet started decreased by 682,506 kilometres.

Organization and Staff

Prior to the nationalization of the private lines, the State lines were operated on a departmental system based on the principle of centralization. The system worked well because the management of the State lines was a relatively small business, but when the Government assumed the management of all lines it was found unequal to the extra work, and in December, 1908, the Imperial Government Railways were removed from the control of the Minister of Communications and assigned to a newly created administrative body, the Railway Board. The administration was then decentralized and remains so to-day. The existing system of organization of the State Railways was established in May, 1920, when the said Railway Board was made, by virtue of Imperial Ordinance No. 143, an independent department of the Central Government. According to the regulations, the Department of Railways not only controls the whole of the State lines, but supervises the provincial railways and tramways in Japan proper. It maintains one central and six regional offices. The Central Office is directly governed by the Minister of Railways and manages all matters relating to the State Railways as well as maintaining

supervision over provincial railways and tramways. It is composed of eight departments according to the kinds of business dealt with. These are the Minister's Secretariat; Bureau of Local Railway Administration; Bureau of Traffic and Operation; Bureau of Construction; Bureau of Maintenance and Improvement; Bureau of Mechanical Engineering; Bureau of Electricity; and Bureau of Finance and Purchase. The Central Office also controls Regions, District Construction, District Improvement, District Electric Offices and Tokyo Railway Hospital. On April 23, 1930, by virtue of Imperial Ordinance No. 83, a further bureau, the Board of Tourist Industry was created as a separate bureau of the Department of Railways. The bureau is controlled by the Minister of Railways and attends to the business of the tourist industry, its object being to encourage people of other lands, by advertising and in other ways, to visit Japan and see her incomparable scenic beauty, natural charm and national manners and customs, and to encourage Japanese living at home to take trips to different parts of the Empire.

As stated above, the administration of the State Railways is decentralized into six regions, Tokyo, Nagoya, Osaka, Moji, Sendai and Sapporo. Each region is a complete unit and is in charge of a director who is vested with power to conduct, at his own discretion, all affairs relative to his jurisdiction, excepting matters of general and large import for which decision of the central administration has to be obtained.

On the State Railways of Japan the members of the staff are either Government officials or employees. On March 31, 1934, there were altogether 201,538 servants in the employment of the State Railways as against 198,848 in the preceding

year. The total salary for the year under review was ¥137,932,168. This shows an increase of ¥1,196,923 (0.9%) from the year before. The average annual salary was ¥684.

Finance By Railway Special Account Law, enforced since 1909, the budget of the State Railways was made separate of the general finances of the State. Furthermore, the law provides that all capital expenditure for railway construction and improvement should be met

from the revenue accruing from all sources of traffic and that the expenditure should, in case the revenue is not sufficient to cover it, be supplemented by the proceeds of public loans issued as a charge on this special account.

Traffic

Goods and passengers carried by the State Railways in Japan proper since 1914-15 follow:

Fiscal years	Goods metric tons	Passengers (unit in 1,000)	Goods revenues (¥ 1,000)	Passenger revenues (¥ 1,000)	Daily average revenue per km. (In yen)
1914-15	35,837,241	166,002	51,750	54,671	33
1919-20	60,899,557	357,581	131,809	161,546	81
1921-22	58,312,333	454,535	167,241	214,519	99
1922-23	65,085,702	512,754	179,220	232,301	103
1923-24	65,818,955	579,288	178,109	249,563	102
1924-25	71,178,263	640,828	194,563	259,047	105
1925-26	73,090,274	683,568	198,786	262,074	103
1926-27	74,780,409	740,333	201,600	266,199	101
1927-28	78,621,788	795,722	211,749	271,523	101
1928-29	79,762,959	847,300	220,686	285,337	103
1929-30	77,224,824	862,939	217,949	279,030	99
1930-31	64,087,099	824,132	184,146	255,086	84
1931-32	60,590,746	787,222	176,124	239,972	77
1932-33	61,732,756	781,149	174,706	233,387	75
1933-34	71,070,592	841,316	198,038	254,534	—
1934-35	68,449,000	906,728	213,467	282,028	—
1935-36	71,739,000	973,447	221,467	297,775	—

Note: 1934-1935 figures are subject to future revision.

Activities of the heavy industries and the expansion of trade were reflected on the railway traffic business, as both the passenger fares and freight receipts went up sharply from 1933. The passenger fares for the year 1933-34 amounted to ¥254,534,000, showing a gain of ¥21,147,000, and freight receipts totalled ¥198,038,000, representing a gain of ¥23,332,000 over the preceding year.

The final figures for 1934-35 and 1935-36 are not yet available, but their figures are tentatively given

in the forgoing table, which show a continuous prosperity of the State Railway business.

Motor Car Service The Department of Railways inaugurated a motor car passenger service between Okazaki and Tajimi and between Seto-Kinemabashi and Kozoji for a distance of 65 kilometres in the business sphere of the Nagoya Regional Office during the 1930-31 fiscal year. This was the first venture of the kind, and as the results proved satisfactory the Department opened similar services between Mitajiri and

Yamaguchi over a distance of 17 kilometres in the business sphere of the Moji Regional Office and between Kameyama and Mikumo and between Omi and Kurokawa over a total distance of 42 kilometres in the business sphere of the Osaka Regional Office during the 1932-33 fiscal year. Motor car passengers carried during the 1933-34 fiscal year numbered 2,682,764 and motor car goods carried totalled 25,770 metric tons. The passenger fares amounted to ¥496,141 and freight receipts ¥41,269, with a total of ¥537,410.

Ferry Service The number of special routes during the year aggregated 7 with the total length of lines of 284 nautical miles, and the number of trips made 109,057 or a gain of 3,834 trips as against those of the previous year. The number of passengers carried came to 6,741,387 yielding therefrom the receipts of ¥4,981,998, a loss of ¥124,613 or 1.8 per cent. for the former and a gain of ¥566,807 or 12.8 per cent. for the latter as compared with the preceding year. The volume of goods carried amounted to 2,509,512 m.t. and the receipts ¥5,263,032, being a gain over the preceding year of 221,014 m.t. or 96 per cent. and of ¥539,162 or 11.4 per cent. in receipts.

Accidents The number of accidents reported during the year totalled 5,009, being an increase of 731 in number. The number of casualties during the year came to 3,090, including those caused by accidents, errors or unknown causes. As com-

pared with the preceding year this is an increase of 128 in the total number. The number of casualties caused by suicide was 2,260, or a decrease of 327 as against the preceding year.

Construction

Railway construction expenses for the 1932-33 fiscal year totalled ¥47,743,368 in contrast with ¥37,706,907 for the 1931-32 year and ¥41,715,774 for the 1930-1931 year. The same for 1933-34 amounted to ¥53,130,133. In 1933-34 the total length of new lines under construction was 1,188.4 kilometres.

The total expenditure disbursed during the year on account of construction amounted to ¥53,130,133 as against ¥47,743,369 in 1933.

Length of Open Lines

The State lines open for traffic on March 31, 1934, the end of the fiscal year 1933-34, totalled 15,737.077 kilometres as against 15,267.361 kilometres in 1932-33, showing an increase of 469.716 kilometres. The total length of tracks reached 25,612,643 kilometres as against 24,993,277 kilometres in 1932-33, being an increase of 619.366 kilometres. Of this total length of lines open for traffic 13,608.033 kilometres are claimed by single tracks, 1,907.452 by double tracks, 29,960 by triple tracks, 171.316 by quadruple and the rest by the other multiple tracks. This length of lines is distributed to regions as follows:

STATE LINES OPEN IN 1934

Kinds of Tracks	Single	Double	Triple	Quadruple and over	Total
Region	k. m.	k. m.	k. m.	k. m.	k. m.
Tokyo Region	1,265,833	587,138	2,910	128,590	1,983,971
Nagoya ..	1,576,295	314,083	11,160	—	1,901,538
Osaka ..	2,493,047	400,457	4,660	58,932	2,957,096
Moji ..	2,338,175	406,314	9,360	4,110	2,757,959
Sendai ..	3,060,548	29,853	1,870	—	3,092,271
Sapporo ..	2,874,635	169,607	—	—	3,044,242
Total	13,608,033	1,907,452	29,960	191,632	15,737,077

Works and Plants

At the end of the year under review there were altogether 22 works and 3 detached plants in operation.

On March 31, 1934 the pay roll comprised 14,112 workmen, and their monthly allowances aggregated ¥890,330.

The aggregate expenses involved in the repair of the rolling stock came to ¥19,984,987. Besides, there were expenses incurred for repair work at the Head Office, at regional offices, and at offices other than the workshops, the total amounting to ¥27,376,650. The cost of by-products either consumed by the Railways or sold to other companies was estimated at ¥2,768,480.

The rolling stock newly built at the workshops during the year comprised 1 Imperial carriage for T. M's attendants, 10 gasoline cars, 7 electric car trailers, 47 covered wagons with brake vans and 8 russel snow-ploughs, while altogether 888 steam locomotives, 106 electric locomotives, 2,477 passenger carriages, 1,377 electric cars and 4,966 wagons received remodelling of more or less serious nature during the year.

Rolling Stock

On March 31, 1934 there were 3,913 steam locomotives, 141 electric locomotives, and 10, special locomotives with the total of 4,064 weighing 335,233 tons, a decrease of 30 in number and 4,018 in tonnage as compared with the previous year. The number of passenger cars was 10,629 with accommodating capacity for 672,782 people, an increase of 211 cars and 26,393 seats as compared with the preceding year. The number of freight cars was 65,804 with carrying capacity of 873,998 tons, an increase of 881 cars and 9,261 tons as compared with 1933.

Electric Power

On March 31, 1934 altogether 2 power stations, 36 substations, 167 switching houses were in operation. As compared with the preceding year the power stations decreased by 1 while the substations increased by 5 and the switching stations by 4.

The total electric power supplied from the Government owned power stations was 220,116,375 k.w.h. and its total consumption 320,356,320 k.w.h., being an increase of 80,919,104 k.w.h. for the former and of 32,597,380 k.w.h. for the latter as compared with the preceding year. The increase in the power consumed is due to the addition of various electric appliances. It should be worth noting, however, that this marked increase in power supplied from the Government power plant was due to the fact that the volume of surplus power of private companies purchased during the years was considerably smaller than in the preceding year on account of the drought and other circumstances, while the decrease in operating expenses required at the substation was explained by the fall in the unit price of the purchased power.

Finance

The State Railway revenue for the 1933-34 fiscal year totalled ¥870,165,166 against ¥761,894,098 for the 1932-33 fiscal year, while expenditures totalled ¥770,366,710. Revenue and expenditures since the 1926-27 fiscal year follow:

Fiscal years	Revenue (in yen)	Expenditures
1926-27	947,086,213	825,612,827
1927-28	1,006,458,791	859,806,853
1928-29	1,014,752,892	876,675,090
1929-30	1,004,911,356	892,160,458
1930-31	813,010,038	740,030,239
1931-32	767,637,721	678,774,390
1932-33	761,894,098	691,012,532
1933-34	870,165,166	770,366,710

The State Railway finance is independent of the general finance of the State and its accounting system consists of three accounts, i. e., Capital, Stores and Revenue Accounts. Details for the total revenue and expenditure for 1933-34 are given below classified according to the three accounts.

Capital Revenue and Expenditure The capital revenue settled for the year under review was ¥127,688,019 as against ¥117,960,782 of the expenditure settled, being an increase of

¥10,629,053 for the former and of ¥11,894,689 for the latter as compared with the preceding year. The increase in the revenue settled was attributable chiefly to the swell in amount transferred from the railway profit, while the gain in the expenditure settled was due to the increase of the construction, the improvement and the motor-car routes expenses as well as the sum appropriated to the redemption of liabilities. Below are given returns on this account settled for the past three years.

Item	1933-34	1932-33	1931-32
	yen	yen	yen
Capital Revenue	127,435,706	116,730,548	123,826,337
Surplus on Stores Account	252,313	323,418	252,001
Total Revenue	127,688,019	117,053,966	124,078,338
Construction, Improvement, and Motor-car routes	111,449,039	99,734,424	92,421,653
Redemption of Debts	6,510,844	6,331,669	18,547,727
Total Expenditure	117,960,782	106,066,093	110,969,380

Stores Account The stores account revenue for the year under review was ¥132,574,211 and the expenditure ¥137,689,094, or an increase of ¥18,734,780 for revenue and of ¥22,658,819 for expenditure as compared with the previous year. The increase in the revenue was accounted for partly by the larger proceeds of sales of the railway stores,

the stores and workshop receipts, while for the increase in the expenditure the swell in the stores and workshop expenses, the charge for electric current and the amount of refunds was responsible. The revenue and expenditure on this account settled for the past three years are as under:

Item	1933-34	1932-33	1931-32
	yen	yen	yen
Railway Stores and Workshop Receipts	132,574,211	119,830,431	114,972,608
Railway Stores and Workshop Expenses	137,689,094	115,030,275	107,649,907

Revenue Account The total revenue during the year came to ¥609,902,935 and the total expenditure ¥521,227,678 which was respectively ¥78,907,235 and ¥513,311,514 more than in the previous year. The increase in the revenue was attributable to the increase of the traffic receipts, the sundry receipts and the receipts on sus-

pense account and advances, while that in the expenditure was explained by the increase in the interest charges on public loans as well as the refunds and advances appropriated for the C. O. D. payments. The Revenue Account settled for the past three years is as follows:

Item	1933-34	1932-33	1931-32
Revenue:	yen	yen	yen
Traffic Receipts	468,652,906	421,418,616	429,153,146
Sundry Receipts	9,247,931	8,241,333	7,839,219
Receipts on Suspense Account & Advance	132,002,098	101,835,751	91,614,410
Total	609,902,935	530,995,700	528,606,775
Expenditure:			
Working Expenses	284,784,383	267,958,803	269,656,045
Interest Charges	93,775,493	88,883,405	87,885,730
Refunds and Advances	135,648,919	105,843,171	95,087,080
Secret Service Fund	27,440	27,440	27,440
Total	521,227,678	469,916,164	460,155,013

Fixed assets of the State Railways for the last eight years follow:

Fiscal years	Value at the beginning of the year	Value at the end of the year
	(In ¥1,000)	
1926-27	2,453,002	2,647,453
1927-28	2,647,453	2,858,794
1928-29	2,858,794	3,062,614
1929-30	3,062,614	3,246,724
1930-31	3,246,724	3,374,392
1931-32	3,347,392	3,413,786
1932-33	3,413,786	3,503,893
1933-34	3,503,893	3,613,169

BUSINESS INCOME AND EXPENSES (In ¥1,000)

Fiscal years	Income	Expenses	Net profit
1926-27	484,082	353,175	130,907
1927-28	506,444	368,277	138,167
1928-29	529,256	393,380	135,875
1929-30	518,016	399,026	118,989
1930-31	458,140	382,552	75,587
1931-32	433,540	365,088	68,451
1932-33	425,954	364,874	61,079
1933-34	474,254	385,578	88,675

Railway Business in 1934 and 1935

The Imperial Government Railways carried 52,373,000 more passengers, loaded 6,918,680 tons more goods and earned ¥41,294,000 more in 1934 (calendar year) than they had in the previous year. Both the State and private lines had the best results in five years. The Government lines' profits tell just below those for the two depression years of 1928 and 1929, when takings were respectively ¥506,023,000 and ¥496,979,000. State railway goods, as usual, were dominated by coal, with lumber, rice, gravel, fertilizers, charcoal, cement,

iron, steel and petroleum following in that order.

December was the busiest month for hauling goods and April saw most passengers and reported the biggest monthly profit. Principal goods transported by the State Railways during 1933 and 1934 follows:

Goods	1934	1933
	(In metric tons)	
Coal	26,901,240	24,862,410
Lumber	6,903,860	5,886,040
Rice	3,343,210	2,923,860
Gravel	2,961,090	2,770,080
Minerals	2,547,090	2,081,980
Fertilizers	1,153,950	1,034,420
Cement	1,237,490	1,109,140
Iron and steel	900,580	704,220
Petroleum	693,780	559,250
Cotton yarn and cloth	589,410	527,910
Flour	331,640	328,410
Sugar	285,530	284,440
Total including others	74,934,350	67,952,770

In 1935 the state railways carried 960,357,000 passengers, an increase of 77,039,000 or 8.2 per cent. over 1934.

The tonnage of revenue freight carried on the railways in 1935, according to the returns of the Traffic Bureau of the Department of Railways, reached a total of 79,679,000 metric tons, an increase of 4,745,000 tons, or 6.3%, over 1934. On a monthly basis the consecutive months registered increases over the same months a year before. The totals of 7,421,000 metric tons and 7,356,000

respectively for December and March were the highest figures in history, to say nothing of comparison with the preceding year. While such striking gains were recorded in the aggregate volume of freight movement, there was a considerable decline in the rate of increase as compared with a year before. Whereas in 1934 the volume of freight increased at the spectacular rate of more than 10% through the period January-May, there was throughout 1935 no single month credited with as high a rate of increase;

9.7% and 9.2% for July and March, respectively, being the highest percentages of increase rate for the year. This falling off in freight movement was indicative of general business, which was at a low ebb from the closing half of 1934 well into the opening of the next year. Compared with the corresponding months a year before, all the months, except March and July, consistently registered declines in the rate of increase from January to August, some signs of recovery being seen in September and the following months.

TRAFFIC AND RECEIPTS OF JAPANESE GOVERNMENT RAILWAYS

Date	Average mileage in operation	No. passengers carried	Revenue			Freight loading	Freight discharges
			Passenger	Freight	Total		
	k.m.	(1,000)	(¥1,000)	(¥1,000)	(¥1,000)	1,000m.t.	m.t.
1932	15,292	695,260	178,684	126,840	305,024	39,984	60,247,798
1933	15,488	825,457	255,346	216,722	372,263	60,955	67,952,775
1935 Jan.	16,465	78,061	24,105	16,290	40,394	5,523	6,134,270
Feb.	16,480	62,715	20,146	16,767	36,914	5,666	6,306,900
Mar.	16,508	73,971	25,824	20,122	45,947	6,562	7,355,693
Apr.	16,558	142,086	33,993	18,425	52,419	5,889	6,450,150
May.	16,579	80,381	25,838	18,295	44,133	5,935	6,684,135
June	16,664	69,567	21,498	16,812	38,310	5,419	6,179,134
Jul.	16,681	73,304	22,663	17,209	39,872	5,628	6,376,401
Aug.	16,730	70,128	26,503	16,833	43,336	5,360	6,013,301
Sep.	16,741	80,705	21,474	18,696	40,170	5,726	6,381,580
Oct.	16,822	85,319	26,598	21,135	47,733	6,639	7,326,842
Nov.	16,924	71,979	23,248	19,912	43,160	6,347	7,042,204
Dec.	17,073	72,142	23,102	21,368	44,470	6,694	7,428,188
Jan.—(1935	—	960,357	294,992	221,864	516,858	71,388	79,678,803
Dec. (1934	—	883,318	275,810	208,693	484,503	67,368	74,934,357

Private Railways

General The status of provincial

railways in operation and those not yet opened on March 31, 1934, follows:

	No.	Length (kilometres)	Construction cost (in yen)
Railways in operation	226	7,135	1,014,087,984 (estimate)
Compared with the year before	(de.) 2	(de.) 58	(de.) 1,330,489 (estimate)
Railways not opened yet	179	3,465	738,954,747 (estimate)
Compared with the year before	(de.) 4	(de.) 281	(de.) 62,002,183

Traffic During the 1933-34 year the number of passengers carried was 462,327,690, yielding therefrom the coaching receipts of ¥59,062,591. As compared with the preceding year

the number of passengers carried increased by 34,659,592 or 8.1 per cent., the coaching receipts by ¥3,632,571 or 6.6 per cent. The increase both in traffic volume and

coaching receipts was accounted for by the improvement of the financial situation that had been in depressed condition these few years. The average kilometres of journey per passenger came to 8.8 kilometres and the average coaching receipts per passenger ¥0.128, which means an increase of 0.1 kilometres for the former, but a loss of ¥0.02 for the latter as compared with the previous year. The total amount of goods moved during the year under review figured 24,837,594 metric tons and the receipts accrued therefrom amounted to ¥19,307,870. There are a gain of 2,625,080 metric tons in the volume and of ¥1,462,800 in the receipts. It appears that the return of business prosperity, coupled with the larger demand for munitions and the heavy crops, has brought about the boom of goods traffic during the year, resulting in the swell of the volume of goods hauled and the receipts therefrom. The average goods receipts per metric ton came to ¥0.777, which was a loss of ¥0.026. Altogether 1,870 accidents took place on all the local railways, in which 389 persons were killed and 579 injured. The number of accidents increased by 26 and the injured by 59, but the killed decreased by 28 against the corresponding figures of the previous year.

Rolling Stock The aggregate number of locomotives in use by the local railways at the end of March 31, 1934 was 940 with the weight of 15,380 metric tons, being a decrease of 54 locomotives representing the weight of 797 metric tons. These comprise 697 tanks, 68 tenders, 171 electric and 4 gasolene locomotives.

The number of carriages belonging to the local railways at the end of the year totalled 4,304 with a capacity of 298,645 seats, being a decrease of 174 carriages with 8,425 seats over the preceding year.

The total of freight cars in use numbered 11,350 with the loading capacity of 112,074 metric tons, a loss of 208 wagons but an increase of 1,111 metric tons in the capacity.

Finance The total working revenue of the local railways during the year aggregated ¥87,402,313 as against their total working expenses of ¥48,774,967, leaving a profit of ¥38,627,456. As compared with the preceding year the working revenue showed a gain of ¥5,666,110, and the working expenses ¥4,294,810. The net profit for the year came to ¥27,091,891, i.e., the profit shown above plus ¥23,535,351 of miscellaneous receipts, less ¥26,389,773 of interest paid and ¥8,681,033 of other charges. The earnings per day per kilometre ¥18,667, and the profit per day per kilometre ¥14.784, showing an increase of ¥2.281, ¥0.590 and ¥1.691 in earnings, expenses, and profit respectively against the previous year. The percentage of working expenses to working revenue stood at 55.8 per cent. and that of working profit to the construction expenses at 3.9 per cent., being a loss of 2.2 per cent. for the former but a gain of 0.3 per cent. for the latter.

Asset and Liabilities Both assets and liabilities of the private railways at the end of 1933-34 fiscal year totalled ¥2,105,786,838.

Employee On March 31, 1934 there were altogether 40,513 employees on the staff of the local railways, their monthly allowances amounting to ¥2,169,658, or a decrease of 1,059 and ¥84,072 respectively.

Tramcar Service

Growth of Tramways The tramways in Japan date back from 1880, when an application was tendered for the construction of the Tokyo Horse Tram Co.'s line which was completed and opened to traffic in 1883. As provided by the Tramway Law

now in force, all the tramways in Japan are constructed as a rule on highways. The street railways, a certain number of suburban railways and others laid in provinces are placed under the control of the Law. Such public bodies as cities, towns and villages may take the management of tramways without restriction. Steam and electricity are mostly employed as motive power except a few local tramways where

gasolene, horse or human power is used for the purpose.

Lines in Operation On March 31, 1934 there were 140 tramways open to business with a length of 2,652.65 kilometres and an aggregate capital of ¥2,071,474,039, being a loss of 1 in number, 9.11 kilometres in length, and a decrease of ¥85,729,400 in capital. Classified according to kinds of motive power they are made up as follows:

Kind of power	No. of Tramways	Kilometres	Capital
		k.m.	Yen
Electric	94	2,119.12	2,034,577,376
Steam	8	127.30	1,881,000
Steam and gasolene combined	9	101.23	3,795,000
Gasolene	15	134.06	23,257,000
Horse power	14	137.45	7,693,000
Human power	6	33.49	270,663
Total	140	2,652.65	2,071,474,039

New Lines, Lines Under Construction During the year 12 tramways with a total length of 18.06 kilometres were newly opened to business, while 19 tramways with a total length of 172.95 kilometres were granted charters for construction. Most of them use electricity as power and aim at conducting transportation in and near towns. The tramways under construction at the end of the year numbered 73 and their aggregate length measured 826.27 kilometres while the total capital amounted to ¥24,677,842, being a decrease of 3 in number, of 127.45 kilometres in length, and of ¥14,850,000 in capital respectively as against the preceding year.

Results of Working The number of passengers carried during the 1933-34 period was 1,505,459,732 yielding therefrom the coaching receipts of ¥101,879,927. Compared with the preceding year the number of passengers decreased by 2.6 per cent. and the receipts by 2.8 per cent.

The goods carried during the pe-

riod was 1,497,023 metric tons, and the goods receipts ¥1,242,955, being a loss of 0.7 per cent. in receipts but an increase of 10.3 per cent. in the volume of goods carried.

The total revenue of the tramways during the year amounted to ¥110,828,843 as against their total working expenses of ¥67,525,124, leaving a balance of ¥43,303,719 as profit. This was a gain of 1.1 per cent. in the revenue, 4.2 per cent. in the profit and a loss of 0.9 per cent. in the working expenses. The working revenue per day per kilometre was ¥120.05, the working expenses per day per kilometre ¥73.15 and the profit per day per kilometre ¥46.90, being respectively an increase of ¥2.33, ¥0.02 and ¥2.31 as compared with the preceding year. The ratio of the working expenses to the working revenue stood at 60.9 per cent., or a decrease of 1.2 per cent. while the ratio of the profit to the construction expenditure was 5.4 per cent. or 0.1 per cent. more than in the preceding year.

Assets and Liabilities The total capital investment of all the tramways open to business up to the end of the year under review amounted to ¥2,218,474,136 of which ¥1,881,696,774 was paid up and ¥812,444,149 was claimed by construction expenses for open lines. Besides, there was ¥1,173,269,987 in the shape of debentures, floating debts, overdraft and bills payable, etc.

Tourist Industry

Three organizations, viz., the Board of Tourist Industry, the Japan Tourist Bureau (founded in 1912), and the Kokusai Kwanko Kyokai (founded in 1931), a foundation devoting itself solely to the carrying out travel publicity abroad, form the hub, from which radiate innumerable lines connecting it with other important organizations, such as the Society for International Cultural Relations and other cultural bodies, tourist associations in various districts, transportation concerns, hotels and all others that have anything to do with the tourist industry of Japan.

The Board of Tourist Industry is divided into two departments, one for general affairs and the other for

business promotion. In addition to them, it has three boards of investigation dealing particularly with tourist resorts, hotel enterprises and treatment of tourists respectively. These boards comprise experts of the government and the public on the respective subjects. The Committee of Tourist Industry holds its general meeting at least once a year, when it decides what course to follow in carrying out any important undertaking.

The Kokusai Kwanko Kyokai runs an office in New York and Los Angeles, though the actual business is carried on there in the popular name of the Japan Tourist Bureau.

The branch offices of the Japan Tourist Bureau, both in Japan and abroad, number about 130 in all. Besides, it has agents in some important cities abroad in order to make the network of its service as extensive and satisfactory as possible.

Since the establishment of the Board of Tourist Industry, tourist organizations of a non-commercial basis have been successively founded in many parts of Japan, and at present the total number is in the proximity of 400.

FOREIGNERS WHO VISITED JAPAN in 1935

Nationality	Duration of Stay			Total	Purpose	
	Less than 15 days	Less than 3 months	More than 3 months		Sight seeing	Official business
Americans	6,004	2,015	1,092	9,111	6,188	53
Canadian	212	72	91	375	206	1
British	3,404	2,908	981	7,293	4,501	54
German	439	579	505	1,523	629	14
French	327	415	152	894	499	11
Soviets	462	480	338	1,280	206	125
Hollanders	346	309	134	789	546	8
Hindues	131	217	380	728	241	0
Philippinoes	274	214	49	537	385	0
Chinese	2,160	1,415	10,685	14,260	1,314	152
Others	1,182	1,285	3,422	5,839	1,248	239
Total	14,941	9,859	17,829	42,629	16,045	706
1934	12,850	8,863	13,483	35,196	11,837	629
Increase or Decrease(-)	2,091	996	4,346	7,433	4,208	17
Percentage of Increase or Decrease(-)	16%	11%	32%	21%	35%	3%

Nationality	Commercial business	Miscellaneous	Total	Percentage	1934	Increase
Americans	448	2,422	9,111	21.4	7,947	1,164
Canadian	26	142	375	0.9	380	- 5
British	469	2,179	7,293	17.0	6,391	902
German	240	649	1,523	3.6	1,313	210
French	47	337	894	2.1	883	11
Soviets	279	670	1,280	3.0	1,427	- 147
Hollanders	78	157	780	1.9	666	123
Hindues	329	158	720	1.7	669	59
Philippinoes	17	134	537	1.3	385	152
Chinese	1,346	11,448	14,260	33.4	12,676	1,584
Others	388	3,915	5,839	14.0	2,459	3,380
Total	3,667	22,211	42,629	100	35,196	7,433
1933-34	3,609	19,010	35,196			
Increase or Decrease(-)	7	3,201	7,433			
Percentage of Increase or Decrease(-)	0.2%	17%	21%			

Railways in Chosen, Taiwan, Manchuria, etc.

Chosen

The first railway enterprise in Chosen dates back to 1899, when a railway linking Keijo (Seoul) with Jinsen (Chemulpo), 29.485 kilometres in length, was laid and opened to traffic by the Kei-Jin Railway Company. The outbreak of the Russo-Japanese War caused the military authorities of Japan to build the Keijo-Fusan, Keijo-Shingishu and Masan lines which were respectively opened to traffic in 1905 and 1906. In 1906 the Imperial Government of Japan nationalized the Keijo-Fusan Line and also took over the Keijo-Shingishu and the Masan Lines from the War Office of Japan, placing all these lines under direct control of the Railway Bureau of the Korean Residency-General. Meanwhile the work of construction was steadily pushed on and in 1910 the Heijo-Chinnampo line was completed. On the spanning of the Yalu River with a swing bridge in 1911 the peninsular railway was brought into connection with the South Manchuria Railway. In 1914 the Taiden-Mokpo and Keijo-Gensan lines were completed, while in 1915 part of the

Gensan-Kwainei line was opened. In 1928 the Kankyo line which connects Kwainei to Gensan was completed, and in 1933 the Tomon line which connects Kwainei to Yuki was opened to traffic. The latter is connected with the Keito line of S. M. R. C. at Kainei, thus preparing a new eastern transportation facility between Chosen and Manchoukuo. On March 31, 1934, the State Lines in Chosen open to business totalled 2,935.4 km. as against 3,142.8 km. in 1933 showing a decrease of 207.4 km. The number of passengers carried aggregated 22,238,338 while the weight of goods hauled was 7,254,859 m.t. The coaching receipts amounted to ¥20,801,721 and goods receipts to ¥22,809,421 and the total ¥43,611,142. The aggregate length of private railways open to traffic on March 31, 1934 totalled 1,172.7 km., the length of lines under construction 91.1 km., and lines contemplated but not yet granted charters 262.6 km. and the total length of all these 1,527.2 km. The number of private companies with open lines was 8. The total length of tramways operated came to 74.2 km. and that of lines contemplated 7.3 km., the power

used being mostly electricity.

Besides, there are 159.5 km. of exclusive railways which are operated for the benefit of private concerns of individuals during the year under review. (See Chapter XL for fuller informations.)

Taiwan

It was not until the cession of the Island of Formosa (Taiwan) from the Chinese Government to Japan that the island began to enjoy railway facilities, for, prior to that time, the only railroad existing was a small light railway between Keelung and Shinchiku built at the time of the Ching Dynasty. Soon after the cession, the Taiwan Government-General brought forward a plan, with the approval of the Diet, to build a railway connecting Takao with Keelung at the expense of ¥28,800,000. Work was started in 1889 from both termini and finished in April, 1908. This line now forms the trunk line in the island's communication system. The construction of this pioneer line was followed by other lines, that is, the Kyukyodo-Heito section completed in 1912, the Taito line in 1917 and the Giran line in 1924. The length of lines open to traffic on March 31, 1934, was 881.7 km., being a decrease of 1.6 km. as compared with the preceding year. The number of passengers carried came to 17,140,859, the volume of goods hauled to 5,086,727 m.t. and the earnings accruing from these two sources to ¥19,331,049. Compared with the corresponding figures for the preceding year the number of passengers increased by 5,004,132, the goods volume decreased by 75,447 m.t. and the total earnings increased by ¥476,177.

Most of the private railways existing in Taiwan were originally constructed by sugar refining companies for transporting sugar and other

materials, transportation business being conducted only as a side work. At the end of March 31, 1934, there were 8 companies with the total working km. of 2,296.3 while the balance 1,793.2 km. were for the exclusive use of the companies owing them.

The tramways, which form an important factor in the island communication system, have made a marked development in recent years. The total length of lines in operation on March 31, 1934, was 1,247 km., the number of passengers carried aggregated 3,303,642, goods moved 690,691 m.t. and the total receipts ¥1,650,642.

Karafuto Railway

The first railway in Karafuto (Japanese Saghalien) was constructed by the Military Department in 1906 between Otomari, formerly known as Korsakovsa, and Toyohara, formerly Vladimolocka, 41.83 km. in length. It was a light railway with a gauge of 0.61 metre and exclusively used for military purposes. With the withdrawal of the military Government in April, 1907, the railway was transferred to the control of the Karafuto Administration and opened to public traffic in August of the same year. As traffic went on increasing the gauge was widened to 1.07 metres, some time in 1910, while construction of sections further north of Toyohara was started. Late in 1911 the work on the Toyohara-Sakaehama section being completed, the Otomari-Sakaehama section, 94.13 km. which now forms the trunk line in the island's communication, was opened to traffic. Construction work has been continued since and a branch line linking the Kawakami Mine with Konuma, and the Honto-Noda section on the west coast were completed and opened to business in 1914 and 1920 respective-

ly. In addition, the construction of a branch line which connects Toyohara, the capital of the island, with Maoka on the west coast, was started in 1921 and opened to business in 1928. There are altogether three local railway companies that have run railway business in Karafuto. The number of passengers carried, in 1934, was 318,314 and volume of goods handled 308,488 m.t.

South Manchuria Railway

It was on September 5, 1905, that the Japanese Government, by virtue of Article 5 of the Peace Treaty concluded between Japan and Russia, acquired possession of the railways in Manchuria from Changchun to Dalny, now Dairen, and Port Arthur, now Ryojun, together with its branch lines, all the rights, privileges, and property attaching thereto, including the local mines formerly owned by the Chinese Eastern Railway. On June 7, 1906, Imperial Ordinance No. 142 was issued concerning the establishment of the South Manchuria Railway Company and on July 13 of the same year General Viscount Gentaro Kodama was appointed chairman of the promoters' committee which were composed of 80 members. On July 25, 1906, the presidency was assumed by General Viscount Masatake Terauchi, the then Minister of War, due to the death of General Kodama. The articles of association relative to the company were prepared by the committee on the basis of the Imperial Ordinance and the instructions of the Government. They were approved by the Government on August 18 and the establishment of the company was sanctioned by the Minister of Communications on November 1, 1906. The authorized capital of the company at first was

¥200,000,000, of which ¥100,000,000 represented the total of the appraised value of railways with properties and the mines at Fushun and Yentai as handed over to the company by the Military Field Railway Department. The other half of the capitalization was offered to public subscription and the shareholders were guaranteed a 6 per cent. dividend per annum by the Japanese Government. By March, 1920, 800,000 shares representing 80 million yen were paid up, but with the development of various activities after the World War the capitalization was increased to 440 million,¹ one-half of the increased capitalization being taken up by the Japanese Government. The company is authorized to issue debentures not exceeding twice the amount of paid-up capital, and not exceeding the amount of total capitalization. The company has often issued debentures on the home and foreign markets and on such occasions both the principal and interest have been guaranteed by the Government. At the end of 1933 the authorized capital of the company was ¥800,000,000, paid-up capital ¥512,208,000; the total length of lines open to business was 1,129.1 kilometres. The gauge of these lines was 1.067 metres at first, excepting the Mukden-Antung Line. The company shortly after its establishment rebuilt the lines to the standard gauge of 1.345 metres. The doubling of track between Dairen and Changchun, 705.5 kilometres, was completed in 1915. In the year 1933 the number of passengers carried was 11,633,875 and showed an increase of 3,023,716 over the previous year. Goods carried aggregated 18,850,840 m.t. The income from these came to ¥110,697,250. (See Chapter on Manchoukuo.)

Motor Transport and Its Development

Behind Japan's motor transport system there is no such history of experimentation and endeavour as characterizes the arrival of the motor car in the West. The first car seen in Japan was one imported from America by a foreign resident of Yokohama in 1897, and then for the next ten years there was no great increase in the number. In 1907 there were only 16 cars in the whole country. Then came a change. In 1912 there were 520 vehicles and a year later 1,000. In 1921, passenger cars numbered 4,683 and business cars numbered 7,439. The great earthquake and fire which destroyed Tokyo and Yokohama in 1923 brought about a great demand for motor cars because rail traffic was interrupted at various places and the help of motor cars was badly needed. In 1924, the number increased to 40,070, of which 27,959 were passenger cars and 12,097 were

trucks. The rate of increase for the five years 1921-26 was for passenger cars 100.49 per cent. and for trucks 1,200.6 per cent. This rapid development of motor car transport has driven rikishas, electric cars and provincial railways into the background. Motor car passengers are increasing year after year, while passenger receipts on provincial railways are quickly decreasing. To the present, except in the vicinity of large cities, Japan has not been blessed with good roads, but the construction of first-class motor roads is being pushed ahead in all parts of the country and traffic is bound to make a phenomenal increase as the roads are completed.

Number of Cars According to the statistics taken by the Police Bureau, Home Ministry, the number of all kinds of cars in Japan proper was 156,573 at the end of 1934.

NUMBER OF MOTOR CARS IN JAPAN PROPER

At the end of	Ordinary Cars		Trucks	Special Cars	Small Cars	Total
	Private	Taxicabs				
1933	7,723	59,010	38,199	5,187	25,124	135,234
1934	7,970	62,511	42,059	4,938	39,095	156,573

Number of Cars in Principal Prefectures in 1934

	Ordinary Cars	Trucks	Special cars	Small Cars	Total
Tokyo	17,420	9,128	1,193	9,906	37,647
Osaka	5,471	3,430	446	6,233	15,580
Hyogo	3,168	1,703	198	2,596	7,665
Kanagawa	3,230	2,054	200	1,444	6,928
Aichi	2,715	2,290	346	2,967	8,318
Shizuoka	2,296	1,652	126	1,171	5,245
Fukuoka	2,641	947	247	1,046	4,881
Kyoto	2,398	1,164	155	1,662	5,379

Figures of the National Resource Bureau taken at the end of October 1935 are as follows:

NUMBER OF CARS IN THE EMPIRE

(October 31, 1935)

	Passenger Cars	Trucks	Special	Total
Japan proper	74,275	43,244	3,383	120,902
Colonies	8,500	4,891	566	13,957

Commercial Passenger Cars Although the available figures are old, the business mileage of commercial passenger motor vehicles by fixed lines at the end of 1930 totalled 122,284 kilometres. If the business mileage of motor trucks by fixed lines be added, the total amounts

to more than 160,900 kilometres. There were many cases of duplication of services by competitive lines, but if the actual business mileage is estimated as being one-third of the above total, it will be found that it was more than double that of the Government-owned and private railway and tramcar services combined. The total number of companies and individuals engaged in bus business in 1933 reached 3,491. Among prefectures Fukuoka led with 219. The other prefectures which had over 100 were as follows: Kumamoto 198, Fukushima 197, Hokkaido 133, Oita 122, Kagoshima 107, Saga 100, Akita 100, and Nagasaki 100. These figures do not necessarily represent the prosperity or better facilities for motor transportation in the districts, but in many cases simply indicate the absence of any effective control of the business. The worst instance of the case is a load in Kumamoto where 10 buses are running.

The Ministry of Railways is going to control over such disorder or competition according to the Motor Transportation Business Law promulgated in 1934.

The prefectures which had geographical and geological handicaps had smaller numbers such as Okinawa 12, Tottori 27, Nara 28, Fukui 28, and Kochi 30. The prefectures in which the six big cities are located had comparatively small numbers indicative of a good control, i. e. Tokyo 71, Hyogo 80, Kanagawa 60, Osaka 42, Aichi 83 and Kyoto 62.

(As to the production and supply of motor cars in Japan see Chapter XIX.)

Motor Cycles The number of motor cycles in all Japan at the end of 1914 was 111, which became 265 in 1919, 332 in 1920, 424 in 1921, 519 in 1922, 609 in 1923, 516 in 1924, 962 in

1925, 852 in 1926, 1,008 in 1927, 1,119 in 1928, 1,477 in 1929, 2,213 in 1930, 2,888 in 1931, 3,439 in 1932 and 12,358 at the end of 1934.

Automobiles Imported

Japan's imports of automobiles and parts are mostly from America. The largest total imports were ¥34,908,822 in 1930. Imports since 1918 have been as follows:

Year	(In ¥1,000)	Value
1918		7,661
1919		11,228
1920		10,478
1921		8,067
1922		7,309
1923		13,482
1924		21,186
1925		11,682
1926		15,722
1927		18,281
1928		32,244
1929		33,608
1930		20,773
1931		16,329
1932		14,821
1933		14,382
1934		32,813
1935		32,589

American Cars Used America dominates the Japanese motor car trade, supplying 90 per cent. of the total. At the end of 1927 there were approximately 54,000 motor vehicles in this country, principally of American manufacture. The Ford Motor Company, Yokohama, assembles materials imported from America and sells its products in the Japanese market. General Motors, Osaka, works on the same principles. Sales are well distributed over the utility range, with commercial vehicles in the lead. The growth of the one-yen taxi business brought a strong demand for cheap passenger cars, notably Fords, Chevrolets and Whippets among the Americans, Citroens among the French and Morris cars among the British. One-yen taxi concerns have been formed in all the leading cities

of Japan. These concerns rent the cabs to drivers who pay, in addition to the rent, for the gasoline consumed. So great has been the success of the one-yen system that the metered taxicabs have all but disappeared from Japan. Moreover, there has been a considerable change in the type of car used. Cheap cars are principally in evidence, although some second-hand machines, hand-me-downs of the older companies,

are to be found.

Tractors Tractors have not found a large market in Japan. Those bought have found their way into industrial fields, for the farms of Japan are small and comparatively few tractors can be utilized in agricultural work, though forestry has found a use for several. About 1,000 are now in use throughout the country.

Aviation

History of Development

The Early Period During the Satsuma Rebellion in 1877, two balloons were built. In 1891, Mr. Chuhachi Ninomiya made a model of an aeroplane shaped like a bird from his own design, and, in 1894, another shaped like an insect. In 1897, Mr. Isaburo Yamada obtained a patent for a kite balloon of his own invention. Two of these kite balloons were used in the siege of Port Arthur during the Russo-Japanese War. In 1907, a balloon corps was organized in the Telegraph Corps at Nakano, and, in June, 1909, a special military balloon investigation association was established. In March, 1910, a gliding test of aeroplane No. 1 of the Hino type was made at Toyamagahara, Tokyo, and, in October that year, a flying test of an aeroplane of the Narahara type was made. On December 19 of the same year, Lieutenant Tokugawa (now Major-General) flew 3,000 metres in four minutes in a Farman aeroplane at Yoyogi, and Captain Hino flew in a Glady aeroplane. This was the first time that an aeroplane flight was carried out in Japan.

The First Civilian Flight In the spring of 1911, airship No. 2 of the Yamada type was taken out of the hangar at Osaki, Tokyo, and made

a successful cross-country flight. In March and April of the same year, an American flyer carried out an exhibition flight in Osaka and Tokyo; on April 8, Mr. Shinzo Morita, who had studied flying in France, flew in a 45 h.p. monoplane over the Joto parade-ground in Osaka, this being the first flight by a civilian flyer in this country; and, in April that year, the aerodrome and flying ground at Tokorozawa were completed. In June, 1912, Mr. Atwater, an American flyer, conducted a series of exhibition flights by hydroplane on the sea off Nishinomiya near Osaka; and, in July that year, five officers were selected from each army division to be trained as flying officers. This marks the beginning of instruction in flying to military officers in this country. In the autumn of 1912, a number of aeroplanes and airships participated in the grand military manoeuvres. In February, 1913, the Teikoku Hiko Kyokai (Imperial Aeronautical Association) was established; on May 4 that year, Mr. Koba Takeishi, a civilian flyer, started on a Naruo-Osaka-Kyoto flight, but, when landing in the Fukakusa parade-ground in Kyoto, he met with disaster and died as the first victim of civilian aviation in Japan.

Contest of Civilian Aviators In 1914, a contest by civilian aviators was

held at Naruo, near Osaka, under the auspices of the Imperial Aeronautical Association, and, during the Tsingtao campaign Japanese military aeroplanes took part in actual fighting for the first time and displayed their ability in scouting, in bombing the enemy fortress and in an aerial combat with enemy planes. In 1915, a meet of civilian flyers was held in Osaka, and a military flying battalion was formed. Between January and April, 1916, American aviators visited Japan and performed trick flying at Naruo and other places; and, on April 27 that year, night flying was successfully carried out for the first time in this country. In 1917, the flying battalion was enlarged into the first and second battalions and a balloon corps. In April that year, Mr. Bird Smith, an American flyer, again visited Japan and carried out a series of high-class exhibition flights in Osaka and Tokyo. In April, 1918, Mr. Masao Goto, a private flyer, succeeded in making a non-stop flight between Tokorozawa and Osaka for the first time.

Military Flying School In April, 1919, the Military Aeronautical Department and the Military Flying School were established; and, on October 22 that year, the first mail transport flight between Tokyo and Osaka was carried out with success. In 1920, the Aeronautical Institute was established at Tsukishima, Tokyo; and, in May that year, two Italian aviators paid a visit to Japan by air. In March, 1921, the regulations for the control of aviation were put in force. In the autumn of 1922, the Japan Aerial Transport Institute started a regular flying service between Sakai and Shikoku by hydroplanes. In 1923, the military air force was made an independent arm. The Osaka Asahi Shimbun started a regular air service between Tokyo

and Osaka in January and the Japan Aerial Navigation Co., Ltd., one between Osaka and Beppu in July that year. In March, 1924, the dirigible S. S. No. 3 exploded and, in September that year, the trial flight of the newly built airship Astra was carried out.

Air Mail Traffic In April, 1925, air mail traffic was started between Tokyo and Osaka; and, on July 25 that year, an aeroplane of the Asahi Shimbun took off from the Yoyogi parade ground in Tokyo and, on October 27, reached Rome after a flight of 16,000 kilometres (in stages) via Moscow, Paris and London. In 1926, the Japanese Navy purchased from Italy the dirigible S-No. 3, which was one with a semi-rigid envelope, introduced into Japan for the first time. In June, 1927, the Aviation Law came into effect. In May, the Coast Defence Association successfully carried out a flight round the mainland, and, in October that year, the airship S-No. 3 exploded, while participating in the grand naval manoeuvres. In April, 1928, Mr. Habuto, a civilian aviator, established a new record by flying 2,000 kilometres in 13 hours and 23 minutes; and, in July that year, aerial defence manoeuvres were conducted in Osaka.

The Air Transport Co. In 1929, the Japan Air Transport Co., Ltd., was established and inaugurated a regular air passenger carrying service between Tokyo, Osaka and Fukuoka, later extending it to Seoul and Dairen; and two Army scouting planes of the 88 type flew between Tachiarai and Heito without stopping, making a record of aerial connection between the mainland and Taiwan. On their homeward flight, one of the planes flew for 15 hours and 15 minutes, thus establishing a new record of staying in the air in this country. In 1930, the Japan Students' Aviation League was formed

and associations for the study of aviation were established one after another in different universities and colleges in Tokyo and Osaka. Mr. Yoshihara, a civilian flyer, flew from Berlin to Tokyo via Siberia in 11 days and simultaneously, Mr. Azuma, also a civilian flyer, reached Tokyo from Los Angeles via New York, London, Berlin and Siberia. In March, 1931, the airship No. 8 which had been made in Japan and belonged to the naval air force at Kasumigaura took off and stayed in the air for a record length of time of 60 hours and one minute.

The Aeronautical Institute In May, the Aeronautical Institute which ranks as the best research station in the world was completed six years after the starting of its construction. In the same month, the aeroplane "Young Japan" belonging to Hosei University, a member of the Students' Aviation League, set off for Europe from the flying ground at Haneda near Tokyo and, at the end of August, reached its destination, Rome. After the outbreak of the Manchurian trouble in September that year, our military planes participated in actual warfare for the first time since the Tsingtao campaign. In October of the same year, the aeroplane (Fokker No. 3-M) of the Japan Air Transport Company succeeded in flying between Taiwan and the mainland. In 1932, as a consequence of the Manchurian trouble, 64 "Aikoku" (Patriotic) planes were constructed with money contributed by the people generally, and, moreover, defence from aerial attack became much discussed in our principal cities and important economic centres. On February 23, our Navy planes fought with enemy planes in the air over Shanghai. In the fighting, Lieutenant Kotani was killed, while Lieutenant Ikuta shot down a Boeing plane of the enemy.

The trial night flights between Tokyo and Tachiarai on the nights of April 20 and May 2 that year proved a success.

Present Condition of Civil Aviation

Modest but definite progress of commercial aviation in Japan is indicated in the annual report of the Japan Air Transport Company, which reports mails carried by the company's planes during the year 1934 totalled 1,268,435, recording almost a 50 per cent. increase over the 647,601 of the previous year. Commencing with April 1, 1935, the company has resumed night flying and also has inaugurated a special early morning service bringing Mukden within a day's reach from Tokyo by way of Seoul and Dairen. The early morning service will be extended to Hsinking, the capital of Manchoukuo, on May 1. Further expansion of commercial aviation is expected to be facilitated considerably by the 15-year Government subsidy plan adopted by the Communications Ministry last year with a tentative budget of ¥200,000,000 for the whole period and originally a sum of ¥5,500,000 for the 1935-36 year but later cut to a smaller amount. During the last fiscal year the Japan Air Transport Company maintained the longest route of service totaling 2,118 kilometres between Tokyo and Dairen by way of Nagoya, Osaka, Fukuoka, Urusan, Seoul, Heijo and Shingishu. Of the other aviation concerns Japan Aviation Research Institute maintains a 290-kilometre service between Osaka and Matsuyama in Shikoku, by way of Takamatsu; the Tokyo Air Transport Company a 150-kilometre service between Tokyo and Shimoda; the Tokyo Asahi Shimbunsha, Ltd., a 415-kilometre service between Tokyo and Niigata; and the Japan Marine

Air Transport Company a newly opened service between Matsue, Shimane Prefecture, and Hirosaki on the Japan Sea coast. The Tokyo-Shimoda service is operated only between May and September and the Tokyo-Niigata service between May and October. In 1934 the total distance of commercial air routes in Japan was 3,751 kilometres.

Except the Japan Air Transport Company, which has a paid-up capitalization of ¥4,000,000 all Japanese commercial aviation firms are still operated on extremely limited scale, while even Japan Air Transport is assisted by an annual Government subsidy of ¥500,000.

Japan had a total of 235 civil airplanes, on October 1, 1935. The Japan Air Transport Company opened to business in April, 1929, and since its operation to service the company has contributed a great deal to the development of civil aviation in Japan. However, the results have not proved satisfactory, especially with recent years. Its profit rate was dropped considerably of late. Its business results since the opening of business follow:

	Paid-up capital (¥1,000)	Profit	Profit rate (In per cent)	Annual Dividend rate
1st h. 1929	2,500	355	28	5
2nd h. 1929	2,500	622	49.8	6
1st h. 1930	2,500	887	71.0	6
2nd h. 1930	3,055	1,033	52.2	6
1st h. 1931	4,000	979	49.0	6
2nd h. 1931	4,000	390	42.3	6
1st h. 1932	4,000	939	47.0	6
2nd h. 1932	4,000	924	46.0	6
1st h. 1933	4,000	844	42.2	6
2nd h. 1933	4,000	274	13.7	5
1st h. 1934	4,000	379	19.0	5
2nd h. 1934	4,000	254	12.7	5
1st h. 1935	4,000	189	9.5	5

The company will be given subsidy totalling ¥19,970,000 spreading over 11 years after its founding. For the first five years especially three years following its founding the subsidy was larger, but since then the amount has been decreasing. In the third year the subsidy totalled ¥3,580,000, but in the 10th year it will come down to ¥770,000 and in the last year it will be reduced to ¥120,000. The company opened aviation service between Tokyo and Toyama. The service to Formosa will start in January, 1936. The Fukuoka-Shanghai service is on the programme, but this depends on the improvement of Sino-Japanese relations.

REGULAR AIR SERVICE ROUTES IN JAPAN

Route	Distance (in kilometres)	Time required for flying	Carrying * Passengers, freight and mail	Company or body operating route	No. of flights
Tokyo-Osaka	435	2 h. 30 m.	Passengers, freight and mail	Japan Air Trans- port Co., Ltd.	Twice (both ways) per day (except Sundays)
Osaka-Fukuoka	500	3 h.	"	"	"
Fukuoka-Urusan	240	1 h. 50 m.	"	"	Once (both ways) per day (except Sundays)
Urusan-Keijo	310	2 h. 10 m.	"	"	"
Keijo-Heijo	200	1 h. 10 m.	"	"	"
Heijo-Shinwiju	160	1 h.	"	"	"
Shingishu-Dairen	273	1 h. 40 m.	"	"	"
Osaka-Shanghai			"	"	Thrice a week
Osaka-Fukuoka	500		"	"	Not yet opened
Fukuoka-Shanghai	950		"	"	During summer
Tokyo-Toyama	280		"	"	Once (both ways) per day (except Sundays)
Osaka-Takamatsu	140	1 h. 10 m.	"	Japan Air Trans- port Insti- tute	"
Takamatsu-Matsuyama	150	1 h. 10 m.	"	"	"

Route	Distance (in kilometres)	Time required for flying	Carrying	Company or body operating route	No. of flights
Matsuyama-Beppu	130	—	Once a week
Osaka-Shirahama	120	—	3 times a week
Tokyo-Niigata	415	2 h. 30 m.	..	Tokyo Asahi	3 times a week
Osaka-Toyama } Toyama-Niigata }	600	—	During summer
Tokyo-Shimoda	150	55 m.	Passengers and freight	Tokyo Air Transport Co.	Once (both ways) on Monday, Wednesday and Friday
Nagoya-Futami	67	—	..	Ando Aeronautical Ins.	During summer
Osaka-Matsue	390	—	..	Japan Sea	Once
Matsue-Oki	102	—	..	Air Transport	a week

Remarks: Except on the Dairen-Shinwiju route of the Japan Air Transport Company, considerable reductions are made for the through rates both for passengers and goods that are carried beyond one fixed section between Dairen and other places.

OPERATION OF AERONAUTICAL COMPANIES IN JAPAN PROPER

April, 1934—March, 1935

	Frequency of Flight	Distance of Flight	Number of Passengers	Quantity of Goods	Quantity of Mail matters
1933-34	6,552	1,933,290	11,779	51,755 kg.	221,792 kg.
1934-35	6,928	1,892,722	13,211	60,739 kg.	199,247 kg.

RESULTS OF FLIGHTS IN JAPAN PROPER

(All kinds of flights are included)

	Frequency of Flight	Distance of Flight	Hour of Flight	Number of Accidents	Casualties		Damages on Machine
					Death	Wounded	
1930	30,018	2,346,025	15,499	33	1	4	25
1931	51,370	3,010,260	20,600	63	12	18	57
1932	51,984	2,807,112	19,422	66	14	10	51
1933	55,521	3,153,860	22,104	60	11	23	48
1934	57,022	3,758,042	25,887	52	9	20	45

Flying Grounds

Public and private flying grounds in Japan are as follows:

Public Grounds The Tokyo Airport. The Tokyo flying ground is situated at Suzuki-Shinden, Hane-da-machi, Tokyo prefecture (Long. 139° 40' E. and Lat. 35° 30' N.). It is a flying ground on land and covers an area of 528,926 square metres. Its runway extends for 600 metres from east to west and as much from north to south. It slopes at a gradient of 1/500 and is divided into 330,000 square metres of exposed land, 198,000 square metres of grass land and 33,000 square metres of concrete paved zone. The usual

direction of wind there is from south to north. In the grounds, there are a signal pole, a weighing beam, a compass correction stand, and a factory.

The Osaka Airport. The Osaka flying ground is situated at Kizugawajiri, Funa-machi, Minato-ku, Osaka (Long. 135° 23' E. and Lat. 34° 39' N.). It is a flying ground both on land and water in category and covers an area of approximately 350,000 square metres. Its runway extends for 720 metres from east to north and 400 metres from north to south. The ground inclines in a minor degree from north to south and is overgrown with clover. The gliding range for hy-

droplanes is the sea outside Osaka harbour. The direction of wind there is generally from east to west. Chief provisions in the ground are a signal-pole, two tower-cranes, and a compass correction stand.

The Fukuoka Flying Ground. The Fukuoka flying ground is situated at Najima, Tadara-mura, Kasuya-gun, Fukuoka prefecture (Long. 130° 26' E. and Lat. 33° 39' N.). It is a flying ground for hydroplanes and its gliding range extends over the eastern part of Fukuoka Bay. The direction of wind there is generally from south to north. It is provided with a signal-pole, a crane, a weighing beam for hydroplanes, a compass correction stand, a gliding incline, an anchorage, etc.

The Urusan Flying Ground. The Urusan flying ground is situated at Urusan, Urusan-gun, Keicho-Nando (South Kyongsang-do), Chosen. It is a flying ground on land and its runway extends for 600 metres from east to west and for the same distance from north to south.

The Keijo Flying Ground. The Keijo flying ground is situated at Nyoito, Ryukomen, Koyo-gun, Keikido (Kyongki-do), Chosen. It is a flying ground on land and its runway extends for 600 metres from east to west and for the same distance from north to south.

The Dairen Flying Ground. The

Dairen flying ground is situated at Choushuitzu, Kwantung Province. It is a flying ground on land and its runway forms a circle with a 600-metre diameter.

Other public flying grounds are Shinweju, Niigata, Matsue, Toyama, Miyakonojo and Nagoya.

Private Grounds The Nakajima Aeroplane Works. This flying ground is situated at Minami-Hamakawa, Oi-machi, Yebara-ku, Tokyo, and is for use by hydroplanes.

The Hokkai Times Ground. The Hokkai Times flying ground is situated at Kita Nijushijo and Nijugojo, Sapporo. It is a flying ground on land and its runway extends for 190 metres from east to west and 360 metres from north to south.

The Kawanishi Aeroplane Co. This flying ground is situated at Naruo-mura, Muko-gun, Hyogo prefecture, and is for use by hydroplanes. Its gliding range is on the sea off No. 1, Ohigashi, Naruo, Naruo-mura.

There are 8 private grounds other than above mentioned ones.

Aeronautical Wireless Stations

The following wireless stations exist with the special object of supplying aeroplanes flying the Tokyo-Dairen and the Osaka-Shanghai routes with weather reports and also of reporting their arrival and departure:

Name	Call signal	Site
Tokyo Wireless Station	JXS	Otemachi Nichome, Kojimachi-ku, Tokyo.
Hakone	JXH	Segyodaira, Mishima-machi, Takata-gun, Shizuoka prefecture.
Kameyama	JXK	Ochizaki, Kameda, Kameyama-machi, Suzuga-gun, Miyé prefecture.
Osaka	JXO	Dojima Nichome, Kita-ku, Osaka.
Fukuoka	JXF	Najima, Tadara-mura, Kasuya-gun, Fukuoka prefecture.
Itsuhara	JXI	Itsuhara-machi, Shimokata-gun Nagano prefecture.
Tomiyé	JXY	Minami Tomiyé-mura, Matsuura-gun, Nagasaki prefecture.
Kagoshima Post Office	JKB	Yamashita-cho, Kagoshima.
Naha	JCX	Tenki-cho, Naha

Name	Call signal	Site
Urusan Wireles Station	JBM	Hokumen-Dotei, Urusan, Urusangun, Keisho-Nando (South Kyongsang-do), Chosen.
Keijo " "	JBB	Hommachi Itchomé, Keijo (Seoul), Keikido (Kyongki-do) Chosen.
Dairen Telegraph Office	JDP	Kanbudori, Dairen.
Taihoku " "	JFQ	Kyomachi, Taihoku Formosa.

Land Marks for Aviators

In order to secure the safety of

aerial navigation, the following places are marked with their names in large white "Kana" letters:

Mark	Place
Numazu	Tsuruta, O-oka-mura, Sunto-gun, Shizuoka prefecture.
Hamamatsu	Matakogawa, Tomizuka-mura, Hamana-gun, Shizuoka prefecture.
Kameyama	Nomura, Kameyama-machi, Suzuka-gun, Miyé prefecture.
Shōdoshima	Shikai-mura, Azuki-gun, Kagawa prefecture.
Imabari	Ohama, Chikami-mura, Koshichi-gun, Ehimé prefecture.
Murozumi	Aburada, Murozumi-machi, Kumaké-gun, Yamaguchi prefecture.
Nakatsu	Tsunoki, Nakatsu-machi Shimoké-gun, Oita prefecture.
Yukubashi	Yukibashi, Yukibashi-machi, Kyoto-gun, Fukuoka prefecture.
Urusan	Sansanri, Urusanmen, Urusan-gun, Keisho-Nando (South Kyongsang-do), Chosen.
Kwokan	Nasanri, Kwokanmen, Yeido-gun, Chusei Hokudo (North Choongchong-do), Chosen.
Taiden	Kudori, Gainamen, Taidén-gun, Chusei Nando (South Choongchong-do), Chosen.
Ten-an	Seiseiri, Ten-anmen, Ten-an-gun, Chusei Nando (South Choongchong-do), Chosen.
Shariin	Tetsuzanri, Shriinmen, Hozan-gun, Kwokai-do (Whanghai-do), Chosen.
Heijo (Pyongyang)	Jinkori, Seisenmen, Daido-gun, Heian Nando (South Pyong-an-do), Chosen.
Teishu	Jogaido, Teishumen, Teishu-gun, Heian Hokudo (North Pyong-an-do), Chosen.
Shingishu	Mirokudo, Kojomen, Gishu-gun, Heian Hokudo (North Pyong-an-do), Chosen.
Pitzuwo	Pitzuwo, Kwantung Province.

Civilian Aeroplanes

Civilian aeroplanes on October 1,

1935, for which certificates of airworthiness and registry certificates have been granted, are as follows:

Classification	Description	Number	Total number
Free from all restrictions	Aeroplanes	33	33
	Hydroplanes	—	
Not qualified for trick flying	Aeroplanes	177	202
	Hydroplanes	25	
Total	Aeroplanes	210	235
	Hydroplanes	25	

Note: 50 planes were damaged by the typhoon of September 21, 1934.

Civilian Aviators in Japan Licensed Japanese civilian aviators on Octo-

ber 1, 1935, are as follows:

Classification	1st class	2nd class	3rd class	Total
Aeroplane and hydroplane pilots	267	332	97	696
Navigators	18	246	—	264
Mechanics	—	—	—	86
Dirigible balloon pilots	—	—	—	1

Aerial Lighthouses According to the first plan of the Department of Communications 19 aerial lighthouses will be established along the Tokyo-Osaka route and the same number along the Osaka-Fukuoka line. For the former the four larger ones, at Hakoné (Shizuoka prefecture), Yaizu (Shizuoka), Chita (Aichi) and Ikoma (Nara) are already erected. This has been changed and 34 lighthouses have been erected between Tokyo and Osaka. The erection of the same number of aerial lighthouses between Osaka and Fukuoka is also contemplated. In the following list those under the heading Osaka and Fukuoka the first five have been completed:

Tokyo-Osaka Place	Prefecture
Tokyo Airport	Tokyo
Totsuka	Kanagawa
Tsujiido	"
Hiratsuka	"
Kōzu	"
Manazuru	"
Yoguratake	"
Kurakakéyama	Shizuoka
Jikkoku	"
Gotemba	"
Numazu	"
Tagonoura	"
Miho	"
Yaizu	"
Kuno	"
Kanaya	"
Fukuroi	"
Hamamatsu	"
Toyohashi	Aichi
Manzu	"
Goyu	"
Chitamotomiyayama	"
Akeno	Miye
Chisezaki	"
Seki	"
Kata	"
Reisanji	"
Tsuge	"
Uyeno	"
Okawara	Kyoto
Kasagi	"
Kizu	"
Ikomayama	Nara
Osaka	Osaka

Osaka-Fukuoka Place	Prefecture
Osaka	Osaka
Suma	Hyogo
Murozu	"
Tamatsu	Okayama
Hayashima	"
Kasaoka	"
Hachigaminé	Hiroshima
Kamikitagata	"
Minnaga	"
Kumanoato	"
Hiroshima	"
Iwakuni	Yamaguchi
Takamori	"
Kushihama	"
Nakaseki	"
Ubé	"
Karita	Fukuoka
Wakamatsu	"
Kanegasaki	"
Hiyamizutogé	"

Organizations connected with Aviation

The Aviation Council This body is under the direct control of the Minister of Education and returns reports on matters submitted by him; it also deliberates on important matters concerning the study of the basic theories of flying-machines and makes recommendations to the Cabinet Ministers concerned. It is composed of a president and 20 councillors, and, in case of particular need, councillors ad interim are appointed. The councillors are the Vice-Ministers of the Departments of War, Marine, Education, and Communications, as well as those who have deep knowledge and wide experience, while the councillors ad interim are selected from among scholars and experts.

The Imperial Aeronautical Association The Imperial Aeronautical Association was established in 1913 with the object of encouraging and protecting the development of science and art pertaining to aviation and of flying machines and their parts and accessories as well as diffusing knowledge of, and cultivating taste for, aerial flight among the

people. A sum of ¥500,000 granted from the Privy Purse was made a foundation-fund, and, with interest accruing from it and with receipts from dues paid by its members (¥2.00 per member), the Association carries on its undertaking, the principal items of which are presenting persons who fall victims to aviation and accidents connected thereto with condolence money, awarding bounties to persons connected with aviation, and giving lectures, cinema shows, and exhibitions concerning aviation. It also publishes a monthly journal containing aviation news at home and abroad. It has an Imperial Prince as patron and a board of directors of 30 members, including a president, two vice-presidents, and a managing-director. In addition, it has five auditors and over 105 councillors, from whom directors are elected. Its offices are located at No. 7, Sakurada Hongo-cho, Shibaku, Tokyo.

The International Aviation Commission
This Commission is a permanent organ created in accordance with the provisions of the Treaty relating to Aviation, and makes or receives proposals bearing on alterations and modifications of the provisions of the treaty to and from the signatory Powers, and reports to them such alterations and modifications as are adopted.

The International Aviation Federation
This Federation consists of various

corporations relating to aviation in different countries and chiefly aims at the progress of civil aviation through mutual consultation and also the promotion of mutual facilities. Besides, it undertakes recognition of world flying records. The Imperial Aeronautical Association represents Japan in the Federation.

The Aeronautical Institute The Aeronautical Institute was first established at Etchujima in Tokyo in April, 1918 by taking over the business of the Commission on Investigation of Aeronautics organized in the Tokyo Imperial University in April, 1916, with the object of making researches in aeroplanes, airships, balloons, motors, aviation psychology and other matters concerning aviation. Subsequently, in the earthquake and fire of 1923, the institute was destroyed and was newly constructed at Komaba in the grounds of the Department of Agriculture of the Tokyo Imperial University in 1927. It is divided into the departments of air pockets, aeroplanes, physics, chemistry, metallurgy and material, and ranks first in the world in point of equipment. The present president is Baron Chuzaburo Shiba, Doctor of Science and Professor at the Tokyo Imperial University.

Training Institutes Below are lists of institutes established for the training of aviators:

PRIVATE INSTITUTES AND SCHOOLS FOR THE TRAINING OF CIVILIAN AVIATORS

Name	Site	Representative
Sakai Seaplane Flying School	Shin-Koyenchi, Ohama, Sakai, Osaka prefecture.	Choichi Inoué
Japan Flying School	Tachikawa-machi, Tokyo prefecture.	Tamotsu Aiba
Hamamatsu Aeroplane Works, Ltd.	Tomuzuka-mura, Hamana-gun, Shizuoka prefecture.	Koshiro Irié
Dai-ichi Aeronautical School	Funabashi-machi, Chiba prefecture.	Kojiro Munezato
Nagoya Flying School	Obatagahara, Higashi-Kasuga-gun, Aichi prefecture.	Fukuhi Mihara
Ando Flying Institute	Shin-Maiko, Asahi-mura, Chita-gun, Aichi prefecture.	Kozo Ando

Name	Site	Representative
Japan Light Aeroplane Club	Saginuma, Tanuma-machi, Chiba prefecture.	Sanji Narahara
Tokyo Flying School	Susaki, Fukagawa-ku, Tokyo.	Tatsugoro Yendo
Tokoku Flying School	Taudanuma-machi, Chiba prefecture	Kikuo Suzuki,
Asia Aeronautical School	Susaki, Fukagawa-ku, Tokyo	Kintaro Inuma
Kokusai Volunteer Air Corps	Tatetau, Osaka	Ryoichi Sasakawa
Tanaka Aeronautical Institute	Susaki, Fukagawa, Tokyo	Fujio Tanaka
Miyajima Aeronautical Institute	Tsuzumigahama, Hiroshima	Shigemitsu Yemi

FLYING MACHINE AND MOTOR MANUFACTURERS

Aeroplane Manufacturers

Name	Site of Factory
Mitsubishi Heavy Industry Co., Ltd.	Oyé-machi, Minami-ku, Nagoya
Kawasaki Shipyard, Ltd.	Higashijiriké, Hyogo, Kobé
Aichi Time-Piece and Electric Apparatus Co., Ltd.	Funagata, Sennen-cho, Minami-ku, Nagoya
Nakajima Aeroplane Works	Ota-machi, Nitta-gun, Gumma prefecture
Ishikawajima Aeroplane Works, Ltd.	Tachikawa-machi, Tokyo prefecture
Kawanishi Aeroplane Co., Ltd.	Hyogo.
Tokyo Gas & Electric Industry Co., Ltd.	No. 100-1 chome, Iriarsai, Omori-ku, Tokyo

Motor Manufacturers

Mitsubishi Heavy Industry Co., Ltd.	Oyé-machi, Minami-ku, Nagoya
Kawasaki Shipyard, Ltd.	Higashijiriké, Hyogo, Kobé
Tokyo Gas and Electric Industry Co., Ltd.	Iriyamazu, Iriarsai-machi, Yebara-ku Tokyo
Tokyo Factory of the Nakajima Aeroplane Works, Ltd.	Ogikubo, Suginami-ku, Tokyo
Aichi Time-Piece and Electric Apparatus Co., Ltd.	No. 15 Funagata, Sennen-cho, Minami-ku, Nagoya

Balloon and Dirigible Manufacturers

Fujikura Industrial Co., Ltd.	No. 132 Osaki-machi, Yebara-ku, Tokyo
Tokyo E. C. Industrial Co., Ltd.	No. 437 Ikejiri-machi, Setagaya-ku, Tokyo

CHAPTER XXVI

SEA TRANSPORTATION

Historical Background

The dawn of Japan's history is associated with marine activities. The national mythology is rich in stories of sea adventures. Later authentic records fully demonstrate the energy and spirit of the early Japanese, who had to fight their way through stormy seas in the primitive craft of those days. The period covered by the latter half of the sixteenth century and the beginning of the seventeenth century marks the golden age of marine activity of Old Japan. This was in a great measure due to the stimulus received by the Japanese through the appearance of Portuguese and other foreign ships in Japanese waters. Japanese vessels not only were in evidence in South China and the South Sea Islands, but cruised the Pacific as far as Mexico and fought their way through the Indian Ocean and the Cape of Good Hope to Europe. Military rulers encouraged maritime enterprises and numerous large vessels were built. Thus, the shipping trade between Japan and the South Seas and India, carried on under letters patent and numbering no less than two hundred ships at one time, engaged in commerce with twenty different countries, which were eventually dotted with regular Japanese colonies.

Ban on Shipping Activities Unfortunately, while the maritime prosperity of Japan was thus making progress by leaps and bounds, the Tokugawa Shogunate took the drastic measure of secluding the country and forbidding all foreign inter-

course. Its first act was to place a strict ban on the propagation of Christianity in 1613. Subsequently, in 1634, all commercial relations with foreign countries were stopped, and in 1636 the construction of large ocean-going vessels was forbidden. For a long period of more than two centuries thereafter, the ocean trade of Japan was held in a state of forced suspension.

The Well-timed Visit The Commodore's visit in 1853 was well timed, inasmuch as by this time many Japanese amongst the intelligent class were dimly aware of the conditions outside Japan, and the Shogun's Government amid the confusion of opinion took a firm step and signed the treaty. This event was followed in 1854 by the conclusion of similar treaties with leading nations of Europe. Commercial intercourse with foreign countries was thus resumed, and the time-worn restrictions on navigation and ship-building were withdrawn. Then was formed the nucleus of the present mercantile marine of Japan. The Shogun's Government, finding the old Japanese systems of ship-building and navigation utterly out-of-date, promptly decided upon introducing the ideas of the outside world. For this purpose, students were sent abroad, while foreign experts were engaged to work in Japan. A ship-building yard was established in Yokosuka, and a naval school in Nagasaki.

After the Meiji Restoration

The First Steamship Co. In the third year of Meiji the Government promulgated the Mercantile Marine

Regulations. In the same year, the pioneer steamship concern was inaugurated and a new leaf in the history of the Japanese mercantile marine was turned. The first company to be incorporated was the Kwaiso Kaisha, or Forwarding and Transport Company, which was later re-named the Teikoku Yusen Joki Kaisha (Imperial Mail Steamship Co.). Mampei Kimura was one of the chief promoters. A regular service was maintained between Tokyo and Yokohama and between Osaka and Kobe. Yataro Iwasaki, founder of the Mitsubishi interests, incorporated a shipping company called Kutsumo Shokai, later re-named the Mitsubishi Shokai in 1870 and inaugurated a regular passenger service between Tokyo and Kochi in Shikoku, from which Iwasaki hailed. Three steamers formerly owned by Lord Yamanouchi, former feudal lord of Tosa, were employed in the service. When the Japanese Government sent a punitive force against Formosa in 1874, all foreign steamship companies interested in the Far Eastern shipping trade declared neutrality and rejected the Government's offer to charter their ships. Perplexed at this, the Government ordered the Mitsubishi Shokai and Teikoku Joki to offer their ships, and thus the transportation of troops was smoothly effected.

The N. Y. K. Comes into Existence Shigenobu Okuma, then Minister of Finance, and Toshimichi Okubo, then Home Minister, made efforts to organize the Yubin Kisen Mitsubishi Kaisha after the termination of the expedition. The above two firms were dissolved and the Government's ships were handed over to the new company. The Mitsubishi interests made large profits under Government protection. Kaoru Inouye and Admiral Tsugumichi Saigo, who were Okuma's political opponents,

organized a corporation to rival the Mitsubishi's as a means of overthrowing Okuma and ordered, in 1882, Eiichi Shibusawa, Takashi Masuda and others to form a semi-Government shipping company under the name of the Kyodo Unyu Kaisha. Keen competition later ensued between the two and threatened to lead them to ruin. Consequently, the Government ordered them to effect a merger. In 1885 the Nippon Yusen Kaisha was incorporated through the investment of ¥5,000,000 by the Mitsubishi and ¥6,000,000 by the Kyodo Unyu. At the time of founding, the company owned 58 steamers with an aggregate of 68,700 tons. The Pacific Mail Steamship Company of America was then operating a regular line between Yokohama and Shanghai with the s. s. Golden Age, the Costa Rica and two other ships, all of which were purchased by the Japanese Government in 1874 for the transportation of Japanese soldiers on the expedition to Formosa. Iwasaki waged a freight war with the Pacific Mail at that time and finally purchased these four ships for \$8,000,000. This price included the Shanghai wharf now owned by the Nippon Yusen Kaisha at Whampoo.

The O. S. K. About this time the Osaka Shosen Kaisha was established in Osaka. It was then a small concern maintaining services in the Inland Sea of Japan, but later developed into a large company. The Nippon Yusen Kaisha, while maintaining the services originally inaugurated by its predecessors, opened new lines to Korea and North China, and one between Shanghai and Vladivostok; and in 1891, it inaugurated the service between Kobe and Manila and commenced to despatch occasional ships to Australia. In 1892, the N. Y. K. Japan-Bombay service was opened, the

first regular Japanese steamship service with a far away foreign country. The rapid progress of Japanese shipping can be proved by the fact that in the beginning of 1891 the total tonnage owned in Japan was 100,000, and this figure was increased by 10,000 tons in the following year.

The Sino-Japanese War During the Sino-Japanese War of 1894-5, when the greater part of Japanese space was requisitioned for transport purposes, a large number of steamers was purchased by Japanese owners and many others were chartered by them, and Japan, having complete command of the sea, was able to maintain its established oversea services. At the close of the war, Japan found that its merchant marine had grown by 100 per cent. compared with the pre-war figures. Meanwhile, the Nippon Yusen Kaisha lost no time in consolidating its established lines and in 1896 it inaugurated three trunk lines, viz., the Yokohama-London-Antwerp line, the Hongkong-Japan-Seattle line and the Yokohama-Manila-Australia line. In 1898 the Toyo Kisen Kaisha was established, and it maintained a regular fast service between Hongkong and San Francisco via Japanese ports with three fine new passenger ships. The Osaka Shosen Kaisha opened a new line on the Yangtze-kiang in 1898. In the following year, this company opened a line from Formosa to Hongkong, via Amoy and Swatow. The increase in Japanese tonnage at that time was remarkable. Whereas, at the end of 1897 it amounted to only 270,000 tons, it suddenly increased at the end of 1898, to 477,000 tons, the ratio of growth continuing, until the gross tonnage of steamers of 1,000 tons and over at the end of 1903 amounted to 521,000.

Foreigners' Services Mention must

not be omitted of the valuable contribution made by foreign experts to the development of the Japanese mercantile marine. Through the remarkable foresight of Iwasaki, not only foreign captains, officers, engineers and pursers were freely engaged afloat, but numerous experts, business and technical, were employed on shore to conduct the business of the Nippon Yusen Kaisha. A large number of these foreigners remained in the company's service for a considerable time after its formation. Foremost among them were A. R. Brown, Alexander Macmillan, T. H. James, J. W. Ekstrand, W. H. Hasewell, Hector Frazer, etc., whose names are still familiar to old timers in the Far Eastern shipping trade.

One noteworthy fact in connection with the development of the shipping business is the advance made by Japanese mariners. Japan imported the science of navigation from the West and early in the Meiji Era, captains, chief engineers and mates were mostly foreigners. When the Nippon Yusen Kaisha was first organized in 1884, the company owned 57 steamers with a total tonnage of 60,000 and employed about 174 foreigners, the number being increased to 224 during the Sino-Japanese War. During the Russo-Japanese War, Japanese mariners were the recipients of much praise, and their credit was greatly raised. After the war, in 1907, the number of foreigners was reduced to 87 and in 1920 there was not a single foreigner in a Japanese ship.

The Russo-Japanese War The Russo-Japanese War broke out early in 1904, and Japan found itself compelled to undertake transport work of the biggest magnitude ever known in its history. This situation naturally created the necessity of purchasing additional tonnage, with the result that at the end of 1906 the

total merchant marine reached a little more than one million gross tons, and Japan thus ranked sixth among the great maritime Powers of the world. Through the expansion of trade after the war, sufficient employment was found for these steamers. The Toyo Kisen Kaisha opened its South American service before the war terminated. The Osaka Shosen Kaisha started in 1909 its Far East-Puget Sound service. Elsewhere the expansion was also pronounced, for in 1907 four large Japanese companies trading on the Yangtze-kiang pooled their interests and formed the Nisshin Kisen Kaisha (Japan-China Steamship Company) and the Osaka Shosen Kaisha in the meantime inaugurated the Tsuruga-Vladivostok and the Osaka-Kobe-Moji-Dairen lines. The general slump in the shipping trade which prevailed all over the world during this period was felt in Japan, but the country was not so badly hit as to prevent its further growth, for, at the end of the year when the World War broke out, the total gross tonnage of ships flying the Japanese flag was 1,590,000, of which 1,310,000 tons represented ships of more than 1,000 gross tons each. Turning to the share which Japanese merchant shipping contributed to its foreign commerce, it was found that, whereas, prior to the Sino-Japanese war (1894-5), only 10 per cent. of imports and exports were carried by Japanese ships, the proportion increased to 40 per cent. after the Russo-Japanese War (1904-5), and just before the commencement of the World War, it was further augmented to 48 per cent.

The World War An extensive dearth of tonnage and the consequent pressing demand for space all over the world, caused by the World War, created a unique situation for Japanese merchant ship-

ping, so much so that the total gross tonnage suddenly swelled by a million tons within a brief period and the yearly shipbuilding capacity increased from 50,000 tons to a half million gross tons. The share contributed by Japanese vessels to the transportation of imports and exports increased to nearly 80 per cent., the remaining 20 per cent. being carried by foreign ships. Many new shipping services to all corners of the globe were opened one after another, and besides rendering distinguished service to the cause of the Allies, the Japanese mercantile marine maintained a regular fortnightly Japan-England mail service, and despatched extra ships to European waters during the war. Furthermore, in response to the call of the United States after that country participated in the War a group of Japanese shipowners delivered a number of steamers aggregating 150,000 tons to the United States Government on charter at rates considerably lower than those which shipowners at that time could have obtained in the open market.

The inevitable aftermath of the war abnormalities—shipping depression—set in early in 1920, and this is still being felt all over the world. Japanese shipping in common with that of all other nations is undergoing a severe test to its perseverance and fortitude. Despite this Japanese shipping has considerably increased. The Toyo Kisen Kaisha transferred all of its Pacific ships to the Nippon Yusen Kaisha, by which the latter became one of the greatest shipping companies of the world.

Aid and Encouragement In 1874, the Government established the policy that the shipping business should receive Government subsidies and it gave to the Mitsubishi Co., which rendered great services during the Formosan affair, thirteen ships and

guaranteed to subsidize the company with ¥250,000 for navigation and with ¥15,000 for training seamen for a term of fifteen years. In return for this, the company was to run regular ships on prescribed routes, carry mails without charge, and meet any requisition of ships by the Government. Each succeeding Government has recognized the functions that shipping companies have to discharge in peace and war, and have never failed to apportion money from the national treasury even in times of retrenchment. Some of the principal decrees connected with the encouragement of shipping are as follows:

(1) The first subsidy to the Mitsubishi Company in September, 1874.

(2) The second and third orders to the same company in 1875 and 1881.

(3) The subsidy to the Nippon Yusen Kaisha in September, 1884.

(4) The subsidy order issued to the Osaka Shosen Kaisha in 1886.

(5) Enactment of the Navigation and Shipbuilding Act in 1895.

(6) Amounts to subsidize lines to Bombay, Australia, Europe and America were granted.

(7) Subsidized lines were extended later to the Inland Sea, the Kinkai (near seas), the Yangtze River route, Canton, Tientsin, Dairen, the South Seas, West Coast of America, the South American routes, etc.

Working Agreements

Japan's three largest shipping concerns, the Nippon Yusen Kaisha, the Osaka Shosen Kaisha and the Kinkai Yusen Kaisha, the last-mentioned being a subsidiary of the first, entered into an agreement in April, 1931, on shipping co-operation as a counter-measure for the shipping depression. The basic principles involved in the agreement were

the mutual respect of services operated by them, the readjustment of steamship routes, the extension of the pooling system and co-operative management. The agreement is to last for 10 years. As the result of this agreement, the Nippon Yusen Kaisha abolished its South American Atlantic service, leaving its operation to the Osaka Shosen Kaisha. The Osaka Shosen Kaisha discontinued the operation of its Puget Sound line, leaving the entire interest of the service to the Nippon Yusen Kaisha, and the Osaka Shosen Kaisha entrusted the management of its North European line west of Suez to the Nippon Yusen Kaisha. The mutual use of agents, joint acceptance of passenger and goods transportation, joint utilization of shipping, land and sea equipment, and the joint purchase of fuel and ships' materials were agreed on among them.

Government Subsidies

There are eight steamship companies working overseas and domestic services under governmental subsidy. These concerns are the Nippon Yusen Kaisha, the Osaka Shosen Kaisha, the Nisshin Kisen Kaisha, the Nanyo Yusen Kaisha, the Kinkai Yusen Kaisha, the Kokusai Kisen Kaisha, the Kita Nippon Kisen Kaisha and the Kuribayashi Shosen Kaisha. The subsidy is paid to these companies for a period of one year from April to March in most cases, while in certain cases the subsidy runs over a period of three years.

The N. Y. K. Yokohama-London service has Kobé, Shanghai, Hongkong, Singapore, Colombo, Suez, Port Said and Marseilles as intermediate ports of call. Its San Francisco line has Honolulu as the only intermediate port of call on both outward and homeward (eastward-bound) trips. On the westward-

bound trip it has Nagasaki, Shanghai, and Hongkong as such. The company's Yokohama-Seattle (eastward-bound) service has Victoria or Vancouver as ports of call and its westward-bound service has Kobé, Moji and Shanghai as ports of call. Its South American West Coast line between Yokohama and Valparaiso (eastward-bound) has Honolulu, Manzanillo, or Salina Cruz, Callao and Iquique as ports of call and its westward-bound line has as ports of call Kobé, Moji and Hongkong. The N. Y. K. Yokohama-Melbourne service has as ports of call Kobé, Nagasaki, Hongkong, Manila, Davao, Thursday Island, Brisbane and Sydney both ways.

The O. S. K. South American East Coast line (Yokohama-Buenos Aires) for its outward bound trip has as ports of call Kobé, Nagasaki, Hongkong, Singapore, Cape Town, Rio de Janeiro and Santos. When homeward bound the line has Santos, Rio de Janeiro and Cristobal as ports of call. The O. S. K. African East Coast line operates between Kobé and Cape Town and on its outward bound trip has Moji, Hongkong, Singapore, Colombo, Mombasa, Zanzibar, Dar-Es-Salaam, Beira, Lourenço Marques and Durban. When homeward bound the line has Durban, Lourenço Marques, Mombasa, Zanzibar, Singapore and Moji as ports of call. These are the most important steamship lines operated under Government subsidy.

The Kokusai Kisen Kaisha, owner of motor and steam vessels aggregating 300,000 tons deadweight, has reached new heights of prosperity under the able management of Mr. S. Kurokawa, President, the net profit for the half-year ending December 31, 1935, having amounted to over ¥3,000,000. During the last few years, seven speedy new motor vessels have been built and

placed in commission on the Orient-New York express service whilst three 19-knotters were completed early this year. The latter have been allocated to the newly inaugurated Far East-North Europe fast service, which will maintain four-weekly sailings in conjunction with two new freighters of the Nippon Yusen Kaisha now building. The Kokusai Line which was mainly engaged in tramp shipping before, now maintains several regular services of international significance, thus contributing much towards Japan's balance of international payments.

In addition, the Nanyo Yusen Kaisha operates under Government subsidy the South Sea line between Kobé and Sourabaya, Java. The former line has Macassar, Sourabaya, Samarang and Batavia on the outward trip. Ships sail direct for Kobé on the homeward trip. The Nisshin Kisen Kaisha operates the China Coast line between Shanghai and Canton as the southern line and between Shanghai and Tientsin or Taku as the northern line. The company also maintains the Shanghai-Hankow line with Chenkiang and Nankiang as ports of call, the Hankow-Ichang line with Shasi as port of call, the Hankow-Hsiangtan line with Changsha as port of call, the Hankow-Changteh line, and the Ichang-Chungching line, all these five lines being known as the Yangtze River services.

The Kinkai Yusen Kaisha, affiliated with the Nippon Yusen Kaisha, operates a subsidized regular service between Kobé and Tientsin or Taku during the winter with Moji as port of call and also the Yokohama-Newchwang (Yingkow) service with Nagoya as port of call, both under Government subsidy. It also runs a regular service between Hakodaté and Odomari in Karafuto. The N. Y. K., O. S. K. and Harada

Kisen Kaisha jointly maintain a Kobé-Tsingtao regular steamer service. The Tsuruga-Vladivostok regular service is operated by the Kita Nippon Kisen Kaisha, which is affiliated with the Osaka Shosen Kaisha. The Kuribayashi Shosen Kaisha, Hokkaido, operates a regular service between Hakodaté and Petropavlovsk in Kamchatka seven times a year during the warm season. Stores and other supplies of daily necessity are carried by ships on the service for Japanese fishermen engaged in the Kamchatka fisheries. A regular connecting service between Aomori and Muroran is maintained by the Kita Nippon.

Nippon Yusen Kaisha regular liners sailing between Japan and Europe call on their outward trips at Istanbul and Beirut more than twice every three months, those sailing between the same places call on their outward and homeward trips at Piraeus more than twice every three months, and those sailing between Japan and the United States call on their homeward trips at Havana in Cuba once every two months, all under Government subsidy.

Open Ports The open ports in Japan are Yokohama, Kobé, Niigata, Ebisuko, Osaka, Nagasaki, Hakodaté, Shimizu, Takétoyo, Nagoya, Yokkaichi, Uno, Onomichi, Itozaki, Tokuyama, Imaharu, Shimonoseki, Hagi, Moji, Wakamatsu, Hakata, Karatsu, Suminoyé, Kuchinotsu, Miké, Misumi, Kagoshima, Izuhara, Naha, Hamada, Sakai, Miyazu, Tsuruga, Nanno, Fushiki, Funakawa, Aomori, Otaru, Nemuro, Kushiro, Muroran, Otomari and Maoka.

Promotion of Seamen's Welfare

There are two important organizations for the promotion of seamen's welfare. They are subsidized by the Central Government. They are the

Seamen's Aid Society of Japan and the Imperial Society of Life-Saving service.

Sea Transportation in 1935

General In general the year 1935 was prosperous for sea transportation of the country. One of the greatest factors which was responsible for bringing prosperity was the expansion of foreign trade. Contrary to the pessimistic views entertained at the beginning of the year the advancing steps of Japan's foreign trade by no means marked time and after the middle of the year both imports and exports made further increases and the total for the year made an all time record with ¥4,971,309,000 (exports ¥2,499,073,000 and imports ¥2,472,236,000). Such a great international move of merchandise could not but give a favourable effect on the carrying trade, and both the Nippon Yusen Kaisha and the Osaka Shosen Kaisha were able to improve their business situation to a great extent. In examining receipts of the two companies for freights it is found that the N. Y. K. obtained ¥63,447,000 (Oct., 1934-Sept., 1935), which showed an increase of ¥8,700,000 over the previous year, while the O. S. K. made ¥71,202,000 (July, 1934-June, 1935), which showed an increase of ¥12,240,000 over 1934. The boom of exports stimulated activity of domestic industries, especially those of textile and heavy industries, which stimulated in turn shipments of coals, iron ores, cement and other materials. As the result, the coastal movement of cargoes became very active and the earnings of steamship companies engaged in coastal trade other than the above two were also great. In spite of the fact that the aggregate tonnage of coasters in one district was larger than the year before by 200,000-

300,000 tons the freight rate was stabilized and was on an average even better than 1934, due to the fact that the demand and supply of space was well maintained owing to the increased movement of cargoes.

Both N. Y. K. and the O. S. K.'s Bombay and other services were extremely active and many new routes were opened. The activities of the business naturally transformed tramp ships into regular lines. For example, the Pacific Ocean Route, the West Australia Route and the New Zealand Route of the Yamashita Steamship Co. were made regular service lines, and the Daido Steamship Co.'s Vladivostok line became a semi-regular line, while the Kawasaki Steamship Co. opened a new Bombay line. The dullness of the foreign market has narrowed the sphere of international activities of the tramps, and even the Yamashita Steamship Co. which has been looked upon as the greatest operator in the past, is changing their tramps into liners.

While sea transportation centering around Japan has been very prosperous since 1933 as above stated, the international freight market with London as the centre was not generally so good for Japanese tramps. In addition to the decrease of exports of wheat in the world, exports of Manchurian soya beans to Europe were not very great. The policy adopted by various countries to protect their own steamers, together with the high tariffs, the quota system and other obstacles, prevented Japanese tramps from doing business in foreign seas. Furthermore foreign steamers other than those chartered by Japanese operators took advantage of the briskness of the market in the Far East and pushed their business into these regions. These foreign steamers reached an enormous number at

one time, and absorbed a great amount of cargo in the Far East. They offered extremely low freight rates for cargoes, like Manchurian soya beans for Europe, so much so that even with the weapon of low exchange rate of the yen Japanese tramps could not compete well against them. As the result the routes where Japanese tramp shipping were more active than in 1934 were restricted to the Pacific Ocean, Australia and India, and the tonnage placed in Europe was only about 150,000 tons. The Italo-Abyssinian War, which broke out just at the time when the agricultural crops of the world were about to be shipped, created a new demand on chartered space for carrying ammunitions. This coupled with the increased demand on space for transportation of new agricultural crops, stimulated the London freight market, and the freight between the Orient and Europe recovered to a considerable extent, and European tramps which concentrated in the Far East were called back to the West. But with the advance of the War it became difficult for Japanese shipowners to place their tramps in the Red and Mediterranean Seas, while the rise of the insurance premium further increased their burdens.

Other noteworthy facts in 1935 were that foreign steamers chartered by Japanese operators showed an all time record and that imported steamers, which were registered in foreign countries, or the so-called anomalously imported steamers, amazingly increased in number. In 1934 foreign steamers chartered were 400,000 tons, but in 1935 they increased to 500,000 tons. Again, the imported steamers, which left their nominal port of register in China, Norway and Great Britain are said to have reached several hundred

thousand tons. Principal reasons are (1) The charterage in Japan was much higher than the current level of charterage in the world, (2) owing to the comparatively high price of Japanese steamers, and (3) Measures taken by the Government for the improvement of steamers was effective only for the building of large-sized steamers and the supply of small-sized steamers was sought abroad where they could be purchased at comparatively low price, especially Chinese vessels.

Freight Market In the early months of 1935, owing to a slackening of movement of cargoes, freight for coal in the coastal trade declined and stood at ¥1.50-1.80 for Wakamatsu-Tokyo, or ¥0.60-0.80 cheaper as compared with rates at the end of 1934. Later in March, owing to an increase of lumber shipments from the North and the approach of the fishing season in northern waters both freight and charterage rose and freight between Wakamatsu and Tokyo or Yokohama for coals was quoted at ¥2.20-¥2.30 per ton, while that for lumber was ¥140-¥160 per 100 koku and the freight market became brisk. The market soon became dull again owing to the return of large Japanese steamers from abroad due to the reason above mentioned, an unexpected decrease of marketing of lumber from the North, and the intrusion of a large number of foreign steamers into the Far East.

In the latter half of the year, the movement of lumber was still small, but shipments of coal, cement, iron ores, iron materials, etc. were unusually large. Further, a large fleet of foreign steamers which flocked to Eastern waters returned to Europe and removed the burden on coasters.

As to overseas freight, the Italo-Abyssinian War stimulated the London market due to the increase in chartered steamers to carry ammuni-

tions. Accordingly freight between Dairen and Europe for carrying Manchurian soy beans rose and was quoted at 25s-26s. Freight between America and Japan for carrying lumber was quoted at \$7 which kept up firm till the close of the year.

Decrease of Northern Lumber The movement of Northern lumber, which is one important item of coastal transportation, has been decreasing owing to the restriction of felling by the Government of Karafuto, specially in 1935. Lumber felled and shipped from Karafuto in 1935 amounted to 4,484,000 koku a decrease of 2,340,000 koku as compared with the previous year. The following table shows shipments of lumber from South Karafuto in the past five years:

1931	873 vessels	10,282,000 koku
1932	856 ..	10,172,000 ..
1933	657 ..	9,056,000 ..
1934	475 ..	6,830,000 ..
1935	363 ..	4,484,000 ..

Even though shipments from North Karafuto and Kitami, and Amashio in Hokkaido were added to the above mentioned 1935 figure the total did not exceed 5,600,000 koku. According to the report of the Hokuyo Domei Kai, an association of coasters, the average freight per 100 koku of logs was:

1933	¥111.50
1934	¥139.60
1935	¥139.80

In contrast with the decrease in shipment the freight rose. This was due to the control of freight rates by the Hokuyo Domei Kai and the increase of coasting cargo movement in general.

Purchase of Steamers Demand for old steamers both for transportation and breaking-up shrank in 1935. The market was very dull compared with that of 1934. The causes for this were (1) Old steamers had been scrapped since 1933 and there

were now not many more left to put on the market, (2) Prices of steamers both at London and in the domestic market were very high on account of the shortage of supply and the unstable political situation in Europe, (3) On the other hand the price of rolled and scrap iron was cheap and made the business

of scrapping old steamers not very profitable, (4) Owing to the permit system for import of foreign steamers it was impossible to import them even though there were some foreign steamers available at reasonable prices. Purchase of old steamers in 1935 as compared with the previous year was as follows:

	1935		1934	
	No. of Vessels	Tonnage	No. of Vessels	Tonnage
Steamers for transport				
Domestic	22	72,743	51	184,927
Imported	1	7,856	5	10,448
Total	23	80,599	56	195,375
Steamers for breaking-up				
Domestic	9	40,468	25	127,600
Imported	34	147,100	39	209,400
Total	43	187,568	64	337,000

As the above table shows steamers for transportation purposes decreased by 33 vessels of 115,000 tons and those for scrapping by 21 vessels of 149,000 tons. The one imported steamer for transportation purposes was imported by the Asano Bussan Kaisha to be used as a tanker. But those steamers which were imported with their registry in their mother countries were many whose total tonnage is estimated to have reached over 270,000 tons.

Idle Tonnage in World Ports The number of steamers moored in the world reached its height in 1933 when there were as much as 15,000,000 tons of idle steamers. Since then the number steadily decreased and in the fall of 1934 there were only 7,000,000 tons of steamers laid-up. In 1935, the policy of protection taken by various countries in the world, especially the policy adopted by Great Britain to protect tramps and the measures taken by the Japanese Government for the improvement of steamers as well as the increase in demand on space caused by the war between Italy and Abyssinia called large fleets of steamers to active service

and leaving 5,130,000 tons moored at the end of 1935. Early in 1935 the laid-up tonnage was 6,890,000 tons which decreased to 6,570,000 tons in April, to 5,730,000 tons in September, and to 5,130,000 tons in December. The tonnage of steamers moored according to principal countries as at the beginning of December, 1935, is shown below. At one time the Japanese steamers moored were reduced to as small as 16,000 tons though it increased later to more than 60,000 tons. But the Japanese tonnage was still the smallest of all.

Countries	December, 1935	Percentage against the total tonnage owned	January, 1935
	(in tons)		(in tons)
Great Britain	795,000	5	1,449,000
U.S.A.	2,395,000	25	2,468,000
Norway	135,000	7	312,000
Japan	62,000	1.2	64,000
Germany	150,000	4	312,000
France	486,000	16	480,000
Italy	207,000	7	302,000
Holland	190,000	9	298,000

Shipbuilding Industry With the measures taken by the Government for improvement of steamers through subsidy coming into operation, the shipbuilding industry has boomed

and now stands at the peak of prosperity. Along with the building up of 200,000 tons of steamers by private dockyards with the first subsidy granted by the Government, building of 50,000 tons of steamers with the second subsidy was begun in April of 1935. Apart from the new steamers which were constructed with the subsidy there were many which were constructed on exclusively private account by the N. Y. K.,

	Number of Vessels	Aggregate Tonnage
January	93	107,808
February	87	99,907
March	89	83,340
April	92	78,659
May	87	88,940

In November and December new orders on steamers of superior class increased, and within a month new orders amounting to about 100,000 tons were placed with dockyards, which in recent years is considered quite remarkable. As the result the

the O. S. K. and many other influential shipowners. Orders on new steamers, coupled with orders on machines and battleships from the navy, made shipbuilding companies busier than they were in 1934.

According to the Department of Communications the number of steamers above 100 tons and their aggregate tonnage under construction from January to October of 1935 were as follows:

	Number of Vessels	Aggregate Tonnage
June	81	71,530
July	78	70,907
Aug.	66	66,117
Sept.	61	75,219
Oct.	64	101,407

industry in December was extremely busy and orders received in that month were the largest in the year.

Orders placed for construction of new steamers, classified according to dockyards, follow:

Dockyards	Use	Weight tons	Kind	Shipowners
Kasado Shipbldg.	Cargo	2,000	Motor	Kobe Sanbashi
"	"	2,000	"	"
Mitsui's Tama Mill	"	7,500	"	O.S.K.
"	"	7,500	"	Settsu Shosen
"	Oil tanker	12,000	"	Mitsui Senpaku
"	"	12,000	"	"
"	Cargo	6,500	Steamer	Kuribayashi Shosen
"	"	4,500	"	Mitsui Senpaku
"	"	4,500	"	"
"	"	8,000	"	Kyoritsu Kisen
"	"	8,000	"	"
"	Passenger & Cargo	4,500	Motor	O.S.K.
"	"	4,500	"	"
Uraga Kisen	Cargo	2,400	Steamer	Settsu Shosen
"	"	6,500	"	Kita Nippon Kisen
"	"	5,500	"	Dairen Kisen
"	"	3,500	"	Yamashita Kisen
"	"	4,000	"	O.S.K.
Harima Kisen	"	9,100	Motor	Kokusai Kisen
"	"	9,100	"	"
"	"	7,500	Steamer	Dairen Kisen
"	"	5,300	"	Yamato Kisen
Hakodate Dock	Oil tanker	2,000	Motor	Kingdom of Siam
Kawasaki Kisen	Cargo	9,000	"	Kokusai Kisen
"	Oil tanker	13,500	"	Yamashita Kisen
"	Cargo	5,700	Steamer	Kokusai Kisen
"	Whaling	20,300	Motor	Hayashikane Shoten
"	Cargo	5,700	Steamer	Yamamoto Shoji

Dockyards	Use	Weight tons	Kind	Shipowners	
Yokohama Dock	Oil tanker	13,000	Motor	Iino Shoji	
	Cargo	10,000	Steamer	N.Y.K.	
	"	6,500	"	Kinkai Yusen	
	"	6,500	"	"	
	Oil tanker	13,000	Motor	Nippon tanker	
	"	1,500	"	U.S.S.R.	
	"	1,500	"	"	
	Cargo	4,100	Steamer	Toyo Kisen	
	"	4,100	"	"	
	Asano Zosen	"	2,700	"	Hinode Kisen
"	"	5,000	"	Naigai Kisen	
Mitsubishi, Kobé	"	3,300	Motor	Ube Cement	
	"	5,500	Steamer	Dairen Kisen	
	"	1,800	Motor	O.S.K.	
	Cargo	7,500	Steamer	Dairen Kisen	
	"	6,000	"	Muko Kisen	
	Mitsubishi Nagasaki	"	10,000	"	N.Y.K.
	"	"	4,500	"	"
	Passenger-cargo	8,750	"	Kinkai Yusen	
	Cargo	10,000	"	N.Y.K.	
	"	"	10,000	"	"
"	"	10,000	Motor	Hiroumi Shoji	
"	"	10,000	"	Takachiho Shosen	
"	Passenger-cargo	8,800	Steamer	O.S.K.	
Total	52 vessels, weighing about 370,000 tons.				

As the above table shows vessels, exclusive of those less than 1,000 tons, numbered 52, which aggregate reached 370,000 tons, a record since 1929 when the construction of vessels with Diesel engines was at its height. These steamers, classified according to the uses for which they are intended, were as follows:

	Number	Tonnage
Cargo boats	37	235,000
Oil tankers	8	68,500
Whaling boat	1	20,300
Passenger or passenger-cargo boat	6	22,850

These new ships classified according to their kind, consisted of 22 motor ships of 167,800 tons and 30 steamers of 193,600 tons. While in the past Diesel engines were usually installed in most new ships, the tendency in 1935 was for the use of reciprocating engines. More than one-half of newly built ships in the latter part of 1935 installed reciprocating engines.

Along with the boom in sea transport, the so-called sea-truck, a small speedy Diesel boat, appeared in the

latter part of 1933, the number of which increased very fast. In 1934 51 vessels of this class, totalling 14,000 tons, were built. If about 100 sailing vessels of 13,000 tons to which auxiliary engines were attached were added to these sea-trucks, it means that there were as many as 27,000 tons of small sized boats at one time. Construction of these boats was busily kept up till the first half of 1935. But it subsided in the latter half of 1935. According to shipbuilding statistics compiled by the Department of Communication these small-sized boats or sea-trucks, whose gross tonnage was less than 500 tons, numbered 29 with 7,120 tons at the beginning of January, 1935, and the situation after that changed as follows:

	Number	Tonnage
At the end of Feb.	27	7,122
" " Apr.	27	7,250
" " June	26	6,893
" " Aug.	20	4,400
" " Oct.	17	3,730

Rivalry Between Japan and Holland
The place of conference between Ja-

pan and Holland on the question of sea transportation was shifted from Batavia to Kobé and was to be held on January 25, 1935, under the auspices of the Java Conference, to discuss pooling and other questions pertaining to only the member companies of the Conference.

However, before the opening of the meeting it came to a standstill on the question of the language to be used in the conference. A futile discussion continued for a month, and without opening a session it broke up toward the close of February. The Dutch delegates, therefore, returned to their country at once. On Japan's side the N. Y. K., the O. S. K., the Ishihara Steamship Co. and the Nanyo Yusen Kaisha saw no hope in the conference and on March 6 they informed the Java, China Japan Line that they would withdraw from the Conference, bringing to an end the Java Conference which had been started in September, 1932.

The shipping war between Japan and Holland after the rupture of the negotiations became more than ever severe. The pressure which the Government of the Dutch East Indies brought to bear upon Japanese steamers and its restriction on imports of Japanese goods became heavier. Important restrictive measures which the Dutch East Indies brought against Japanese steamers were as follows:

(1) Early in 1935 the Government of the Dutch East Indies issued an order to the effect that goods to be shipped out of the Dutch East Indies should all be carried on board the Dutch ships. This order was issued with the purpose of taking all goods to the J. C. J. line in view of the fact that a considerable quantity of Javanese cotton textiles was being shipped to New York through Japan.

(2) An ordinance was issued on

May 29, 1935, which authorized the Minister of Economics to determine, on commission of the Governor-General, when the interest of the Dutch steamship companies were threatened by a certain power as a result of any action taken between that power and the Dutch East Indies, the ratio of goods to be carried by the Dutch steamers, when such goods are either produced in that country or are shipped from that country. The ordinance was put in force on the 30th of the same month.

(3) Shipments of cement destined to Java have been in the past made by the O. S. K., the Ishihara Steamship Co., the Nanyo Yusen Kaisha, and the J. C. J., and the ratio of each was fixed at 25 per cent. The Dutch steamship companies, however, suddenly made a new request to enable them to load 50 per cent. beginning with the July shipment, claiming that this was a demand of the consignors. When this request was refused they made a slight concession and asked for 35 per cent. But as the Japanese shipowners refused to make any shipment of cement unless the old ratio was maintained, it fell exclusively into the hands of the J. C. J. line.

(4) The Dutch East Indies people's Council, which passed in summer the bill to protect commerce which was framed by the Bureau of Commercial Affairs, the bill to prevent entrance of foreign employees and the bill to establish the central bureau to lay in stock, passed a shipping protection law which: (1) prevents sailing of foreign steamers along the coast; (2) restricts ports of call in the Netherlands East Indies to foreign steamers; (3) and intends to strengthen and unify marine laws which are in force in the lands under the direct rule of the mother country as well as its self-governing colonies. It is to be

enforced as soon as they obtain approval of the mother country.

All of these actions on the part of the Dutch East Indies showed that they were making frantic efforts to protect their sea transportation. The efforts were not in vain, for the quantity of cargoes which the Dutch steamers were able to solicit and carry increased steadily.

The Nanyo Kaiun Kaisha In order to improve the situation the Japanese Government instructed Mr. Koshida, Consul stationed at Batavia, to take up the subject of opening a conference between the shipowners of the two countries. Side by side with this in order to compete with the Dutch steamers the establishment of a new company was proposed and in the first part of July the Nanyo Kaiun Kaisha was established with a fully paid up capital of ¥8,500,000 by joint investment of the four companies which withdrew from the Java Conference. This new corporation opened its business on Sept. 1, a month later than it was intended.

In the meantime Consul Koshida kept up negotiation with the Minister of Economics on the subject of opening a conference. The negotiation was fruitful, and through mutual concessions statements were published by both parties toward the latter part of October that the preliminary negotiations between shipowners would be held in Kobé in

November, 1935. And it was opened at the Oriental Hotel in Kobé on November 28, but no concrete subject was taken up on that day, except some arrangements as to the items to be discussed and an exchange of materials, and adjourned till the beginning of 1936.

Steamers Lost Steamers lost by sea disasters have been on the decrease for the past few years. The total loss of steamers and motor boats in 1935 increased by 1 vessel of 1,046 tons and totalled 14 vessels with 25,904 tons.

Total losses in recent years were as follows:

	Number	Gross tons
1929	24	58,854
1930	31	63,551
1931	27	57,134
1932	27	55,308
1933	19	39,211
1934	13	24,858
1935	14	25,904

The total loss in 1930 was the largest figure in the past 7 years. Prior to 1932 the total loss exceeded 50,000 tons every year, which sharply decreased to the 30,000 ton level. Since then it has steadily decreased. In 1934 and 1935 damages due to storms have been frequent and severe, and the number of damaged steamers was considerable every month. But the number of ships, which resulted in total loss, was small as shown in the above table.

PRINCIPAL SHIPOWNERS

(At the End of November, 1935)

Shipowners	Location of head office	No. of Ships	Gross Tonnage
Nippon Yusen Kaisha	Maruno-uchi, Kojimachi-ku, Tokyo	85	628,253
Osaka Shosen ..	Sozomachi, Kita-ku, Osaka	103	483,187
Kokusai Kisen ..	Marunouchi, Kojimachi-ku, Tokyo	26	151,886
Kinkai Yusen ..	Marunouchi, " "	45	135,707
Mitsui Bussan Kaisha	Muromachi, Nihonbashi-ku, Tokyo	31	124,633
Toyo " "	Marunouchi, Kojimachi-ku, Tokyo	14	85,089
Nanyo Kaiun ..	Tokyo	14	72,362
Kawasaki Dockyard Co.	Kawasakimachi, Kobé-ku, Kobé	11	64,692

Other Sailing Ships Measured In Koku
(10 koku counted as one ton)

200-500	177	52,424	—	—	—	—	—	177	52,424
500-1,000	4	2,635	—	—	—	—	—	4	2,635
Total	181	55,119	—	—	—	—	—	181	55,119
Grand total	18,877	4,739,231	1,203	87,576	195	13,328	332	248,532	20,607

REGISTERED SHIPS IN JAPAN PROPER
(Since 1870)

End of	Steamers		Sailing Ships		Other sailing ships measured in koku		Total	
	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons
1870	35	24,997	11	2,611	—	—	46	27,608
1882	198	64,313	399	51,684	—	—	597	115,997
1892	375	157,147	239	34,163	—	—	614	191,310
1897	626	426,624	171	27,412	—	—	797	454,036
1902	1,033	605,122	3,591	329,839	1,260	548,422	5,884	989,803
1907	1,574	1,109,444	4,210	357,275	1,168	442,399	6,952	1,510,959
1912	1,981	1,430,329	6,443	441,039	1,071	554,834	10,095	1,926,851
1916	2,159	1,696,631	9,314	585,593	1,171	880,116	12,644	2,320,236
1921	2,955	3,167,737	14,280	960,947	830	264,419	18,065	4,155,126
1926	3,346	3,607,038	14,184	873,468	564	177,073	17,994	4,498,213
1930	3,351	3,907,908	15,380	896,272	367	117,041	19,098	4,815,854
1932	3,308	3,874,619	15,038	867,658	308	97,060	18,654	4,762,283
1933	3,295	3,780,197	14,981	862,846	275	87,041	18,551	4,651,747
1934	3,365	3,811,773	15,062	874,935	229	71,623	18,656	4,698,870
1935 (Sept.)	3,441	3,836,813	15,255	896,907	181	55,119	18,877	4,789,282

SHIPBUILDING YARDS

Private shipbuilding yards capable of building a ship more than 50 tons (end of 1934)	506
Under individual management	87
Under corporation management	5
Other shipyards	598
Total	598

SHIPS LAUNCHED DURING 1934:

(Ships smaller than 100 tons omitted)

Steamers	Number	78
	Tonnage	141,856
Sailing Ships	Number	99
	Tonnage	13,004
Total	Number	177
	Tonnage	154,860

SHIPS BUILT AT PRIVATE YARDS

	Steamers		Sailing Ships	
	No. of Private yards	No.	No.	Gross tons
1897	81	112	66	4,391
1907	224	76	220	16,841
1912	228	168	372	23,899
1916	219	94	519	45,831
1920	352	69	12	1,711
1926	324	27	5	560
1930	430	49	11	5,849
1932	531	46	20	2,679
1933	559	39	28	3,913
1934	588	78	99	13,004

For 1935 the total number of ships built and their tonnage already reached 205 and 161,784 respectively.

HOLDERS OF CERTIFICATE OF COMPETENCY AS MARINERS

End of	Japanese	Foreigners	Total
1882	1,901	325	2,226
1912	26,139	351	26,490
1916	33,976	351	34,327
1921	45,775	349	46,124
1926	60,154	132	60,286
1930	76,787	132	76,919
1932	89,177	132	89,309
1933	92,751	132	92,883
1934	96,460	132	96,601
1935 (June)	98,010	132	98,142

HOLDERS OF MARINERS' SERVICE BOOK

End of	Japanese	Foreigners	Total
1902	79,753	774	80,527
1907	164,293	1,109	165,402
1912	206,306	1,889	208,695
1915	254,597	2,853	256,950
1921	357,174	5,000	362,174
1930	512,917	4,823	517,740
1932	533,910	5,098	539,008
1933	575,251	2,877	578,128
1934	566,698	2,218	568,911
1935 (June)	576,142	2,348	578,390

Government Subsidy The Government subsidy for the 1935-36 fiscal year, which was adopted at the last Diet session, amounted to ¥9,682,821, representing a drop of ¥312,943 from the preceding fiscal year. The subsidy involves ¥2,997,547 for the San Francisco Line; ¥1,413,744 for the Seattle Line; ¥1,202,200 for the South American East Coast Line; ¥348,246 for the South American West Coast Line; ¥300,000 for the African Line; ¥720,000 for the European Mail Service; ¥160,000 for the South American Line; ¥716,000 for the China Coast Line; ¥50,000 for the Dairen Line; ¥300,000 for the Shanghai Line; ¥100,000 for the North China Line; ¥12,000 for the Tsingtao Line; ¥22,000 for the Japan Sea Line; ¥20,000 for the Petro-pavlovsk Line; ¥10,000 for the Honshu-Hokkaido Connection Line; ¥20,000 for the Naha Line; ¥214,000 for the Hokkaido Line; and ¥20,000 for the Niigata-North Korea Line.

DISPOSITION OF JAPANESE TRAMP SHIPS

(Prepared by Nippon Kaiun Shukusho)

(In 1,000 tons gross)

Services	Dec. 1, 1934	Dec. 1, 1935
European and African	309.1	201.5
North American		
Atlantic	306.2	261.3
Japan-North American Pacific	370.4	403.2
Australia and Indian	251.8	298.7
South Seas and Straits Settlements	475.0	347.8
Near seas	1,392.7	1,601.4
In dock	131.7	95.7
Laid-up ships	—	14.6
Others	14.5	43.5
Total	3,247.2	3,268.3

Shipping Income on International Trade Net profit realized in connection with shipping on the international trade in 1934 amounted to ¥157,500,000 showing an increase of ¥31,400,000 over the previous year, according to the Finance Ministry. The income for the year amounted to ¥260,600,000 against the expenses totalling ¥103,100,000. The following table gives Japan's invisible exports and income in connection with shipping for 5 years:

RECEIPTS IN CONNECTION WITH SHIPPING ON THE INVISIBLE TRADE OF JAPAN

	(in ¥1,000)			
	Total Amount of Invisible Exports (Receipts)	Receipts in Connection with Shipping	Excess of Exports(+) or Imports(-) of Invisible Trade	Excess of Receipts over Payments in connection with Shipping
1930	955,591	194,420	- 14,903	125,335
1931	886,338	166,911	-149,044	100,641
1932	771,653	181,843	+ 2,000	99,701
1933	958,323	227,930	+ 66,233	126,062
1934	974,400	260,600	- 7,600	157,500

CHAPTER XXVII

JUSTICE AND POLICE

Judicature

The Judicature's Position

Since the promulgation of the Japanese Constitution in 1889, the right of the sovereignty of the Emperor has been divided into three distinct departments, viz., legislation, judicature and administration.

In accordance with Article 57 of the Constitution, "the Judicature shall be exercised by the Courts of Law according to law, in the name of the Emperor." Judges are appointed from among those possessing such qualifications as are determined by law and they are guaranteed by the Constitution against being deprived of their positions unless by way of criminal sentence or disciplinary punishment. Not only are the judges guaranteed their positions, but they have authority, in exercising judicial power, to judge on their own independent views, using the statutes as the sole standard of judgment, without being in any way swayed by interference from others and unaffected by authority arising from any quarter.

Since the judges are entirely independent of the administration, the results of judicial decisions are equally independent thereof, and the decisions are not affected by the administrative power except in cases of pardon or provisional release.

Composition of the Courts

In Japan, the ordinary Courts of Law for the adjudication of civil and criminal cases consist of (1) District Courts (Ku-Saibansho), (2)

Local Courts (Chiho-Saibansho), (3) Courts of Appeal (Koso-in), and (4) the Supreme Court (Taishin-in). The District Courts, the Courts of Appeal and the Supreme Court are all collegiate courts with special divisions, in each of which sit a number of judges.

District Courts The District Courts are presided over by single judges. A three instance system is adopted in the adjudication of all ordinary cases, and any one may lodge an appeal against a judgment rendered in the first instance and demand revision of that rendered in the second instance.

In the matter of civil cases, the District Courts possess judicial power to adjudicate on the following matters in the first instance :

1. Demands for money less than 1,000 yen or for articles, the value of which is less than 1,000 yen.

2. The following cases irrespective of value :

(a) Legal actions brought by lessors against lessees, or vice versa, for the receipt, vacation, use, occupation or repair of houses or other building or parts thereof, or for the seizure of the furniture and fixtures or belongings of lessees by lessors.

(b) Legal actions only concerning the boundaries of real estates.

(c) Legal actions only concerning occupations.

(d) Legal actions brought by employers against employees, or vice versa, for contracts of employment, the terms of which do not exceed one year.

(e) Legal actions brought by travellers against hotel or inn keepers, or vice versa, for matters concerning board or lodging, or by travellers against water or land forwarding agents, or vice versa.

(f) Matters concerning bankruptcy.

In criminal cases, the District Courts, as the courts of law for adjudication in the first instance, possess judicial power concerning the following matters, provided they have not been subjected to preliminary examination :

1. Offences punishable with detention or fine.

2. Offences punishable with penal servitude, imprisonment for fixed terms or by imposition of fines, except those punishable with penal servitude or imprisonment for more than one year.

Local Courts In civil cases, the Local Courts possess judicial power concerning the following matters :

1. In the first instance :

Demands other than those falling under the jurisdiction of the District Courts or of the Courts of Appeal.

2. In the second instance :

(a) Appeals lodged against judgments rendered by the District Courts ;

(b) Demands determined by law for revision of decisions or orders rendered by the District Courts.

Further, with reference to criminal cases, the Local Courts possess judicial power concerning the following matters :

1. In the first instance :

Criminal cases falling neither under the jurisdiction of the District Courts nor under the special jurisdiction of the Supreme Court.

2. In the second instance :

(a) Appeals lodged against judgments rendered by the District Courts ;

(b) Complaints determined by law against decisions or orders rendered by the District Courts, except those falling under the jurisdiction of the Supreme Court.

Courts of Appeal The Courts of Appeal possess judicial power concerning the following matters :

1. Appeals lodged against judgments rendered in the first instance by the Local Courts.

2. Complaints determined by law against decisions or orders rendered in the first instance by the Local Courts, except those falling under the jurisdiction of the Supreme Court.

Powers to adjudicate in the first and second instances in civil cases brought against the members of the Imperial Family belong to the Tokyo Court of Appeal.

The Supreme Court The Supreme Court (Taishin-in) is the highest court of law and possesses judicial power concerning the following matters :

1. In the final instance :

(a) Appeals against judgments rendered by the lower courts ;

(b) Complaints determined by law against decisions or orders rendered in the second instance by the Local Courts or by the Courts of Appeal ;

(c) Complaints against decisions to reject appeals made by the District or Local Courts.

2. In the first, and at the same time, final instance : Preliminary examination and adjudication of offences against the Imperial House, offences of internal disturbance, and offences committed by members of the Imperial Family, for which punishment heavier than imprisonment should be imposed.

Public Procurators

A public procurator's office, with the necessary number of procura-

tors, is attached to each court. The work of the public procurator is, in accordance with the code of criminal procedure, to take legal actions, to go on with necessary legal proceedings, to demand a right application of the law, and to observe the right execution of a judgment. According to the code of civil procedure, he has also rights to ask for a report whenever he thinks it necessary and present his opinions to the court on it, and as a representative of public welfare he carries out his supervising business as laid down by the law in all judicial and administrative matters related to the court. But the public procurator acts absolutely independently of the court.

Court Officials and Procurators

Qualifications Candidates for the office of judge or procurator are chosen by the Minister of Justice from among those who have passed the higher judicial service examination. The selected candidates then have to serve a term of over one and a half years of probation in the courts or in a public procurator's office and pass a further examination, after which, should the report on their estimated ability be favourable, they will receive an appointment as judge or procurator. But those who have been professors of law in the Imperial Universities or lawyers of over three years standing can be appointed as judges or public procurators without examination and estimation.

The following are not to be appointed as either judges or public procurators.

(1) Those who have been convicted of a grave crime, with the exception of those political offenders who have been rehabilitated.

(2) Those who have served sentences on minor offences.

(3) Those who have been adjudicated bankrupt and could not be exempted from the responsibility.

Position of Judges and Public Procurators Judges are permanent officials appointed by His Majesty directly, or by His Majesty's order indirectly, or by His Majesty's approval, according to the grade of their position. Unless by way of criminal sentence or disciplinary punishment judges are not to be moved to another post or place, be suspended from office, be deprived of position, or receive a reduction of salary, without their consent, except in so far as the Minister of Justice may order retirement from service by the decision of a general meeting of the Court of Appeal or the Supreme Court on account of disability caused through weakness of body or mind.

The retiring age is for the President of the Supreme Court 65 years, and for other judges 63 years.

The public procurators are appointed by His Majesty directly or by His Majesty's order indirectly or by His Majesty's approval. Unless by way of criminal sentence or disciplinary punishment the public procurators are not to be deprived of their positions against their own will.

The Procurator-General at the age of 65 years and all other public procurators at 63 years of age must retire from service. A public procurator must obey the orders of higher authorities and judicial policemen must obey the orders issued by the public procurators or through them within the district of jurisdiction of the public procurator's office.

The Jury System

In 1923 the Jury Law was issued, and Japan finally adopted the jury system under which persons other than judges are allowed to take part

in criminal trials. The jury system is used in such criminal cases as where the punishment may be capital, or penal servitude or imprisonment for life. Other criminal cases in which the sentence may be penal servitude or imprisonment for a term longer than 3 years are tried by jury only upon demand of the accused and when they come within the jurisdiction of the Local Courts. The following cases are not submitted to trial by jury:

(1) Offences which come under the special authority of the Supreme Court.

(2) Offences against the Imperial House, causing an internal disturbance, helping an enemy, disturbing international relations, and sedition.

(3) Violations of the Peace Maintenance Law.

(4) Violations of the Military Secrets Preservation Law, the Army or Navy Criminal Laws or any other offences in connection with military secrets.

(5) Violations of the Public Election Laws.

The accused can refuse to have his case tried by jury or withdraw his own demand to be tried by jury at any time previous to the statement of the case by the public procurator, under which circumstances the case cannot be referred to a jury.

The jury is composed of 12 men. At the trial, the chief judge, after having heard all the evidence for and against the accused, sums up the facts and main points of the case, and charges the jury to deliberate and render its verdict by a majority vote. The verdict must be a simple statement as to guilt or otherwise. If the court considers the verdict improper the case may be referred to another jury at any stage of the trial.

In a case where sentence has been passed on a jury's verdict of guilt,

no appeal can be made to the Court of Appeal, but a demand for revision may be presented to the Supreme Court.

Penal System

History It was in the time of the Emperor Suiko, 620 A.D., that the first written Penal Code was issued in Japan. The code was very simple, but later the Chinese penal code, the "To", was introduced and the Japanese code was drafted in a more systematic manner and promulgated by the Emperor Mombu, in 702, as the "Taiho Ritsu-Ryo." Five kinds of punishment were mentioned, namely, flogging, whipping, penal servitude, exile, and death, but in most cases these could be varied to confiscation of property or payment of a fine. Grave crimes were treason, atrocities, blasphemy, undutifulness to one's parents, adultery, etc. Confession of the accused was required as a necessary procedure of a criminal suit, and naturally torture was recognized as an indispensable means of obtaining such a confession. Several hundred years after the issuance of the Taiho Ritsu-Ryo the Shogunate Governments adopted extremely terroristic penal systems with the purpose of preventing the occurrence of criminal cases. One of the most important of them was the One Hundred Criminal Regulations of the Tokugawa Shogunate. It was a secret criminal code which was not published and was accessible to the judges only, an expression of the despotism of the ruling class that had as its motto, "leave the people ignorant of the niceties of law."

With the downfall of the Tokugawa Shogunate the Great Emperor Meiji abolished the system of intimidation and reformed the old penal code. The codification of Civil Law was carried on under the advice

of Monsieur Gustave Boissonade, a French scholar of jurisprudence who had been invited to Japan for that purpose. A new Penal Code and Criminal Procedure Law, the characteristics of which were that, though the lawful punishment of criminals is assured, the penalties are tempered with sympathy toward the accused and are in no ways severe, were enacted and promulgated. "No crime shall be punished unless there is a regulation in the law," (*nullum crimen et nulla poena sine lege*), is one of the guiding principles of the code, which was formulated on the French penal code of 1810. Within a few years it was found that the new code was out of date and various amendments were discussed from 1884 to 1907, in which year a thorough revision was made and the present Penal Code issued. Since then the social conditions of the people have undergone rapid changes, more advanced theories regarding penalties have been gaining ground and so many defects have been noticed in the present code, that in 1926 the Extraordinary Legislative Committee passed a resolution that the Penal Code should be revised. A special investigation

committee set to work and in 1931 an outline and draft of a revised penal code and prison law was drawn up. It is expected that the thorough study of the draft that is now going on will soon be completed.

Penalties Penalties are divided into six kinds, namely, the death penalty, penal servitude, imprisonment, monetary penalties, custody, and fines. Confiscation is recognized as an additional punishment. The death penalty is by hanging and is carried out in prison. Penal servitude and imprisonment are for limited terms and for life; limited terms extend from one month to 15 years. Under penal servitude labour is compulsory, but a prisoner serving a term of imprisonment is not compelled to work, though he may be allowed to do so at his own request. A monetary penalty is 20 yen and above, unless made lighter on decision. Custody is from one to under 30 days, and a fine is from 10 sen to less than 20 yen. Those who cannot pay monetary penalties and fines are kept in workhouses as an alternative.

The classified number of penalties imposed during the five years 1929-1933 follows:

Year	Death Penalty	Penal Servitude		Imprisonment		Detention	Total
		for life	for a term	for life	for a term		
1929	13	38	23,932	—	134	5,237	29,354
1930	15	43	27,007	—	360	5,765	33,190
1931	19	38	28,065	—	316	5,500	33,938
1932	22	57	31,339	—	378	4,491	36,287
1933	28	61	34,433	—	440	4,454	39,480
Average for 5 years	19	47	28,968	—	326	5,090	34,450

Number of Prisoners at the End of March, 1934-1936

	Male	Female	Total
1934	—	—	47,210
1935	48,271	784	49,055
1936	49,439	755	50,194

Suspension of Sentence and Provisional Release The present penal law

allows probation. The execution of a penalty often leads to self-abandonment and turns comparatively harmless people, who are not yet addicted to criminal deeds, into habitual jail-birds. This is found to be especially so when the penalty is one of penal servitude for a short time,

and it is, therefore, far better for people convicted of light and incidental offences to be excused from the real infliction of the penalty under special conditions and to be given proper admonitions in order to make them repentant by self-examination. Consequently, the Japanese courts are empowered, under certain conditions, to postpone the execution of sentence for from one to five years, beginning with the day of the sentence and according to the nature and condition of the case, on persons sentenced to penal servitude or imprisonment for less than 2 years.

Probation is cancelled (1) when the probationer, during the time of probation, commits another offence and is sentenced to imprisonment or is given a heavier sentence, (2) when the probationer is sentenced to imprisonment or a heavier penalty is imposed because of some other crime committed before the granting of probation, and (3) when, in cases not mentioned above, the probationer is found to have had at some previous time a sentence of imprisonment or some other heavier penalty inflicted on him. Should the term of probation expire without being revoked the sentence is automatically cancelled thereby. The draft of the penal code of 1931, besides confirming the system of probation, admits the principle of postponement of passing sentence in specially pitiable cases of a non-serious nature.

Release on parole was practised as early as 1790 in the House of Correction at Ishikawajima, Yedo; the present law admits it and it is widely practised. As reformation is one of the chief aims of punishment, when convicts are evidently repentant and there is no fear of their committing further crimes, it is unnecessary to continue the punish-

ment. Therefore, it is stated in the present Penal Code, "when the convicts who are under penal servitude or imprisonment are found to be evidently repentant, provisional release may be authorized by the administrative office after they have finished one-third of the limited term or ten years of the term for life" (Article 28).

Provisional release may be cancelled (1) when the persons on parole have committed another offence during the term of the release and have been sentenced to a monetary or heavier penalty, or (2) when they are sentenced to a monetary or heavier penalty because of some other offence committed before the provisional release, or (3) when they were sentenced to a monetary or heavier penalty because of another offence committed before the provisional release and that penalty must now be fulfilled, or (4) when they break the provisional release rules. In this case the rest of the term of sentence must be served.

Juvenile Criminals Article 27 of the Code of Criminal Procedure says, "public suit may not be instituted when the suit is found unnecessary because of the character of the criminal, his age and environment, the condition of his crime and his behaviour after the incident," and leaves the decision as to whether proceedings should be taken to the public procurator. The existing criminal system of Japan is thus inclined to some extent to subjectivism, putting emphasis on the offender himself rather than on the offence. Its evident expression is found in dealing with young offenders. According to the provisions of the Juvenile Criminal Law, 1922, young boys or girls who are under 18 years of age are called juveniles and their offences are dealt with, not under the penalty system,

but by a system of protection. Even when they are punished, the penalty is inflicted in a special way. Protective measures are (1) to give admonitions, (2) to leave them to the guidance of school principals, (3) to let them solemnly declare their sincere repentance in a written statement, (4) to place them, under certain conditions, in the care of their parents, (5) to place them under the care of temples, churches, protective bodies or other proper persons, (6) to hand them over to the care of the juvenile probation officers, (7) to send them to reformatories, (8) to send them to houses of correction, and (9) to put them under proper treatment in hospitals. These measures may be continued till the juveniles reach the age of 23 years. When juveniles are admitted to probation or provisional release they are not put under police supervision as is the case with the adults, but are left to the care of the juvenile probation officers. For the protective disposition of juvenile offenders juvenile courts have been established.

Special Measures for Juveniles Special measures for the penal punishment of juvenile offenders are:

(1) The death penalty or penal servitude for life is not inflicted upon a person who is under 16 when the crime is committed. When the crime is so grave that the death penalty or penal servitude for life should be passed, the sentence is mitigated to penal servitude or imprisonment for 10-15 years.

(2) When a juvenile criminal should be sentenced to a penal servitude or imprisonment of more than three years at its maximum, the minimum and the maximum limits are fixed within the scope of the penalty to be inflicted on the crime committed. And when he should be sentenced to a penalty of more than

5 years at its minimum, the term is diminished to 5 years. That is to say, in case of a juvenile convict an indeterminate sentence is admitted.

(3) Juveniles sentenced to penal servitude or imprisonment are put in a special jail or in a section of the common prison secluded from adults. If they reach the age of 18 during the term of confinement they may still be kept secluded till they reach the age of 23.

(4) Juveniles sentenced to penal servitude or imprisonment can obtain provisional release (a) after 7 years in case of a life-term sentence, (b) after 3 years in case of (1) above mentioned, (c) after serving one-third of the time in case of (2) above.

(5) Juveniles are not sent to work houses.

Second and Habitual Offenders

In case of those who repeat criminal deeds and commit other offences, especially in the case of professional and habitual offenders, it is necessary to put them into confinement for considerable lengths of time in order to give them time to reform their character and at the same time protect society at large from their depravations. To deal with these people Japanese criminal law provides a system of aggravating penalties for the recidivists and admits special dealing with habitual thieves as a complementary system.

Repetitious Offenders (Art. 56-59, Penal Code) When a person commits another crime and is sentenced to limited penal servitude within five years from the day of release from former penal servitude or from remission of execution of a penalty, he is classified as a second offender. Under the name of repetitious offenders come all second offenders and up. The cases of remission of

penal execution are extinction of prescription, special pardon and the case stated in the Penal Code, Art. 5. Amnesty and probation not only remit penal execution, but also cancel the effect of the penalty altogether, and the crimes concerned cannot be taken as the basis for forming a repetitious offence. Again, when a person commits a crime during a term of probation the offence for which the probation was admitted is not counted as the first offence. The penalty inflicted on a repetitious offender is aggravated.

Habitual Thieves Habitual offenders are most numerous in burglary and larceny cases. The habitual offenders often regard prison as their residence and repeat crimes immediately after their release, to the great harm of the community, in order to get back "home". They have, therefore, to be separated from society by the infliction of comparatively long sentences. In many cases it has been impossible to increase the penalty, or when it has been increased it has still been too short, and as there is no provision in the existing Penal Code for unlimited imprisonment the Thief Prevention Law was enacted in 1930. According to this law, when persons commit burglary or larceny habitually by the use of weapons, or by forming a band of more than two, or stealthily breaking into houses by night, they are punished by being sent to penal servitude for more than 2 years in the case of a thief and more than 7 years in that of a burglar. The draft of the revised penal law of 1931 adopts the system of incarceration for unlimited terms for habitual offenders (draft, Article 91-95).

Peace Preservation

Penalties are imposed as deterrents, but are not always effective,

especially in the case of insane people and habitual drunkards, as well as in that of habitual offenders. For that reason it is advisable that, in addition to meting out punishment for any wrong-doings, it should be possible to segregate such people from law-abiding society. To meet this need, most of the countries of the world have a supplementary system of Peace Preservation Laws, which restricts to a certain extent the freedom of released persons as long as their dangerous character is unimproved. In Japan the existing Penal Code makes no provision for such a system, but the draft of 1931 suggests four kinds of peace preservation regulations, namely, preventive surveillance, curative treatment, compulsory labour, and preventive detention.

Surveillance When persons who are defective in mind or body or are deaf-and-dumb are to be sentenced to imprisonment or some heavier penalty, the Court can decide to place them under surveillance. In case the sentence has already been passed for one reason or other, surveillance will follow the execution of the sentence, but in some cases it may be carried out before the commencement of execution or at any time during its course, (draft, Art. 127). Those who are put under this measure are to be kept in the surveillance house and receive treatment for their defectiveness, while being under surveillance. They may be released when further surveillance is found unnecessary by order of the administrative offices. In principle the time of surveillance is 5 years, but this may be renewed by the Court when thought necessary. When the sentence of penalty and the surveillance disposition are pronounced at the same time, the Court may choose either one of them as either of the

two became unnecessary by the enforcement of the other.

Curative Treatment When drunkards or users of narcotics commit offences while in a state of intoxication or insensibility and it is found necessary to correct them of their bad habits, the Court may order them to be kept in Homes of Correction for a period of 2 years and receive proper curative treatment.

Compulsory Labour When persons who habitually commit crimes because of vagrancy or hatred of labour are to be sentenced, the Court may order compulsory labour together with the regular sentence for a period of 3 years, during which time they are to be kept in compulsory labour houses and compelled to work diligently under strict discipline in order to acquire the good habit of work. The chief official of the labour house may send them to work for the Government or to public or private factories, to farms or other places of labour, allowing them to stay outside the Compulsory Labour Houses, if deemed expedient.

Preventive Detention When the convicts who are to be released at the expiration of a term of penal servitude are found to be addicted to incendiarism or likely to commit murder or burglary, the Court may order them to undergo preventive detention, (draft, Art. 139). They are to be kept in Houses of Prevention and get the treatment necessary for leading them to full repentance. The duration of the treatment is 2 years in principle, but may be prolonged by the Court. This measure is to take effect after the expiration of the regular term of penal servitude, (draft, Art. 140-142).

Criminal Compensation System

A nation has the responsibility of compensating innocent persons who

have been wrongfully punished or have been kept in detention during trial. The Criminal Compensation Law was enacted in 1931. Cases to be compensated according to the Law are as follows:

(1) When a verdict of "not guilty" or an acquittal has been given by the examining judge to a person who has been kept in detention, the State makes compensation for the loss caused by the detention.

(2) In case a verdict of "guilty" is reversed by a higher court and the accused has already suffered the execution of the penalty or was kept in detention before the execution, the State makes compensation for the loss caused by the penalty or detention.

When the accused is dead, the bereaved get the compensation. The bereaved in the terms of the Law are meant to be the spouse, children, grandchildren, parents, grandparents and those whose names were in the same census registration at the time of the death of the accused.

As compensation for unlawful arrest or detention, a sum of less than 5 yen is paid against the warrant of arrest or for each day of detention after the arrest or for each day of detention after the execution of the warrant of detention.

As compensation for penal servitude, imprisonment, or detention, a sum of less than 5 yen is paid for each day of the whole period. The same rule applies to detention before the execution of the death penalty.

As compensation to the bereaved of a person who has mistakenly suffered the death penalty, a sum of money considered reasonable by the Court is given in addition to the compensation for detention.

As compensation for a monetary penalty or fine wrongly imposed, the amount of money corresponding to

that of the monetary penalty or fine already paid is given back. In case a person was unable to pay the amount imposed and in lieu was kept in a labour house a sum of 5 yen for each day of detention is paid as compensation.

Claims for compensation should be made to the Court returning the

verdict of "not guilty" or to the Court in which the examining judge pronounced the acquittal.

Statistics

In the following there are attached a number of statistics relevant to the judicature of the country for reference:

I NUMBER OF COURTS (Oct. 1, 1934)

Supreme Court	Courts of Appeal	Local Courts	Branch Courts	District Courts	Branch Offices
1	Tokyo	11	17	64	413
	Osaka	9	12	43	277
	Nagoya	6	9	30	203
	Hiroshima	6	13	36	252
	Nagasaki	8	17	53	284
	Miyagi	6	16	36	228
	Sapporo	5	3	20	96
Total	1	7	51	87	1,753

Number of Civil Cases handled at Courts in March, 1935 and 1936

Courts	1935		Total	Settled	Left unsettled
	Handed over from Feb.	New			
District Courts	75,383	117,608	192,991	117,610	75,381
Local Courts	30,845	7,282	38,127	7,300	30,827
Courts of Appeal	7,754	485	6,239	512	5,725
The Supreme Court	1,358	430	1,788	527	1,261
Total	113,340	125,805	239,145	125,949	113,196
Courts	1936		Total	Settled	Left unsettled
	Handed over from Feb.	New			
District Courts	71,324	112,666	183,990	112,379	71,611
Local Courts	30,393	6,676	37,069	6,508	30,561
Courts of Appeal	5,231	383	5,614	490	5,124
The Supreme Court	1,144	413	1,557	430	1,127
Total	108,092	120,138	228,230	119,807	108,423

Number of Criminal Cases handled at Courts in March, 1935 and 1936

Courts	1935		Total	Settled		Left unsettled
	Handed over from Feb.	New		Cases	persons	
District Courts	2,140	10,237	12,377	10,315	17,284	2,062
Local courts	3,397	1,672	5,069	1,837	2,149	3,232
Courts of Appeal	563	221	784	251	300	533
The Supreme Court	416	185	601	216	402	385
Total	6,516	12,315	18,831	12,619	20,135	6,212
Courts	1936		Total	Settled		Left unsettled
	Handed over from Feb.	New		Cases	persons	
District Courts	2,021	10,354	12,375	10,030	16,342	2,345
Local Courts	3,854	2,622	6,426	2,223	3,202	4,253
Courts of Appeal	535	194	729	204	351	525
The Supreme Court	857	322	1,179	315	412	864
Total	7,267	13,492	20,759	12,772	20,307	7,987

Number of Criminal Cases, 1924-1934

year	Incendi- alism	Forgery of Cur- rency	Mur- der	Bur- glary	Theft	Fraud and Blackmail	Others	Crimes outside of the Crimi- nal Law	Total	Index Number
1924	176	270	142	256	54,087	6,388	12,056	2,274	75,679	100
1925	450	303	168	555	60,010	9,186	13,509	2,410	86,591	114
1926	532	278	191	422	62,917	10,267	14,720	2,133	91,460	121
1927	389	489	166	554	67,944	10,650	15,756	2,873	98,821	131
1928	309	390	164	558	68,292	11,592	20,624	3,892	105,821	140
1929	355	204	181	570	91,884	12,181	16,733	4,594	126,702	167
1930	391	486	198	493	111,456	15,765	18,005	4,319	151,113	200
1931	334	434	145	466	113,666	19,085	19,411	5,293	158,834	210
1932	345	381	188	478	125,872	18,742	19,314	5,671	170,991	226
1933	337	542	207	413	135,053	18,473	19,373	4,543	178,941	236
1934	293	678	153	410	125,732	19,372	20,096	5,826	172,590	228

II CLASSIFIED NUMBER OF CASES INVESTIGATED
BY THE PUBLIC PROCURATORS (1933)

Name of Offence	Number of cases		Persons examined	Prosecutions	
	new	old		cases	persons
Criminal Code Offences					
Against the Imperial House	37	10	67	10	12
Against the execution of official duties	1,048	38	37	227	316
Escaping from prison, etc.	30	—	33	14	14
Giving shelter to a criminal or destroying evidence	116	1	217	21	32
Sedition	3	2	330	1	47
Fires through incendiarism or negligence	13,881	114	14,897	2,828	2,979
Inundating and interfering with irrigation	196	3	485	6	11
Interfering with traffic	858	19	1,183	124	151
House-breaking	4,747	60	6,117	1,300	1,415
Disclosing a secret of another person	44	—	50	5	5
Disclosing national secret	1	—	8	—	—
Opium smoking	16	3	45	12	21
Polluting drinking water	61	—	74	15	19
Forgery of currency	65	—	106	31	64
Forgery of documents	5,114	333	8,453	675	960
Forgery of negotiable securities	608	57	1,069	160	292
Forgery of seals or stamps	4,079	20	4,224	21	33
Perjury	1,482	167	2,657	83	148
False accusation	1,086	51	1,690	39	42
Obscenity, illicit sexual intercourse and bigamy	3,001	92	4,651	842	1,238
Gambling and lotteries	19,218	98	85,836	12,170	50,390
Disturbing worship, etc.	312	5	510	41	54
Malversation	735	51	2,414	253	799
Murder	2,445	42	2,896	1,132	1,338
Inflicting injury	28,129	256	39,687	8,104	9,759
Inflicting injury by negligence	19,080	317	20,369	5,207	5,350
Criminal abortion	502	18	1,877	96	173
Desertion of children	298	4	389	12	15
Arresting or confining others unlawfully	128	9	303	10	29
Intimidation	1,690	33	2,674	362	402
Kidnapping and abduction	1,503	55	2,354	128	166
Defamation	2,371	82	3,440	151	172
Unlawful interference with another man's credit and business	843	83	1,654	42	93

Name of Offence	Number of cases		Persons examined	Prosecutions	
	new	old		cases	persons
Theft and burglary	122,332	364	136,609	19,910	21,413
Fraud and blackmail	89,431	2,155	119,179	5,782	7,378
Usurpation	48,243	908	55,577	2,379	2,648
Receiving stolen property	4,677	112	5,410	660	830
Destruction and concealment of another man's property	2,336	100	3,699	112	124
Total	380,646	5,662	532,869	62,995	108,928
Offences against Special Laws	121,905	1,142	174,131	45,415	69,565

Name of Offence	Non-prosecu- tions		Miscellane- ous		Total		Not yet decided	
	cases	persons	cases	persons	cases	persons	cases	persons
Criminal Code Offences								
Against the Imperial House	24	31	6	10	40	53	7	14
Against the execution of official duties	720	1,063	92	176	1,039	1,555	47	82
Escaping from prison, etc.	10	11	5	7	24	32	1	1
Giving shelter to a criminal or destroying evidence	84	163	9	15	114	210	3	7
Sedition	2	250	2	23	5	330	—	—
Fires through incendiarism or negligence	10,536	11,232	520	559	13,884	14,770	111	127
Inundating and interfering with irrigation	177	444	11	13	194	468	5	17
Interfering with traffic	464	693	261	305	849	1,149	28	34
House-breaking	3,028	4,049	418	519	4,746	5,983	61	134
Disclosing a secret of another person	36	42	2	2	43	49	1	1
Disclosing national secret	1	8	—	—	1	8	—	—
Opium smoking	2	10	5	14	19	45	—	—
Polluting drinking water	36	47	10	12	61	74	—	—
Forgery of currency	23	28	9	12	63	104	7	2
Forgery of documents	3,551	5,446	881	1,349	5,107	7,755	340	698
Forgery of negotiable securities	351	491	134	245	645	1,028	20	41
Forgery of seals or stamps	3,956	4,056	110	121	4,087	4,210	12	13
Perjury	1,104	1,716	232	377	1,419	2,241	230	416
False accusation	921	1,365	108	158	1,068	1,565	69	125
Obscenity, illicit sexual intercourse and bigamy	1,706	2,553	456	707	3,004	4,498	89	153
Gambling and lotteries	6,204	28,109	864	6,739	19,235	85,238	81	598
Disturbing worship, etc.	200	362	70	77	311	493	6	7
Malversation	356	1,113	90	301	729	2,213	57	201
Murder	1,012	1,118	289	364	2,443	2,820	44	76
Inflicting injury	17,548	25,676	2,485	3,714	28,137	39,149	248	538
Inflicting injury by negligence	11,601	12,247	2,138	2,254	18,946	19,851	451	518
Criminal abortion	354	1,018	53	116	503	1,307	17	70
Desertion of children, etc.	194	259	89	103	295	377	7	12
Arresting or confining others unlawfully	105	214	16	40	131	283	6	20
Intimidation	1,145	1,957	200	264	1,707	2,623	16	51
Kidnapping and abduction	872	1,350	516	748	1,516	2,264	42	90
Defamation	2,028	2,815	156	209	2,335	3,196	118	244
Unlawful interference with another man's credit and business	736	242	105	137	883	1,522	43	132
Theft and burglary	87,119	97,004	15,272	17,680	122,301	136,097	295	512
Fraud and blackmail	61,904	78,861	22,000	29,152	89,686	115,891	1,900	3,788
Usurpation	37,074	41,713	8,904	9,860	48,357	54,221	794	1,356
Receiving stolen property	3,714	4,498	367	490	4,741	5,818	48	92

Name of Offence	Non-prosecu- tions		Miscellane- ous		Total		Not yet decided	
	cases	persons	cases	persons	cases	persons	cases	persons
Destruction and concealment of another man's property	2,076	3,131	184	303	2,372	3,558	64	141
Total	260,974	336,395	57,076	77,225	381,045	522,548	5,263	10,321
Offences against Special Laws	51,994	71,870	24,520	30,508	121,929	171,943	1,118	2,188

III BOYS AND GIRLS DEALT WITH IN JUVENILE COURTS

Year	Number of persons dealt with	Number of persons who finished examination					Total
		Not put on trial	Put under protective disposition	Sent to the public procurator	Sent to other courts		
1929	Boys	12,346	7,752	4,227	2	25	12,006
	Girls	1,019	573	409	—	1	983
1930	Boys	12,835	8,328	4,123	3	17	12,471
	Girls	998	565	405	—	—	970
1931	Boys	13,141	8,572	4,218	7	22	12,819
	Girls	1,015	555	429	—	1	985
1932	Boys	13,402	8,478	4,543	1	17	13,039
	Girls	1,154	670	441	—	1	1,112
1933	Boys	16,171	10,841	4,865	—	19	15,725
	Girls	1,201	716	441	—	1	1,158

IV NUMBER OF JUVENILES DEALT WITH IN THE HOUSES OF CORRECTION

Year	Number of persons who went out of the House of Correction								
	Persons received	Released	Provi- sional release	Cancel of decision or its revision	Abscon- dence	Death	Sent to other house	Misc.	Total
1929	1,224	43	76	666	66	3	—	9	863
1930	1,252	65	82	745	83	1	—	1	977
1931	1,259	71	65	774	82	—	—	3	966
1932	1,172	71	63	739	54	—	2	7	927
1933	1,061	83	22	676	13	1	—	3	798

V NUMBER OF PRISONS (Oct. 1, 1934)

Prisons	Branches	Total
52	103	155

VI YEARLY COMPARISON OF THE NUMBER OF NEW CASES

/ Year	1929	1930	1931	1932	1933	Average for 5 years
Criminal Code Offences						
Theft	12,970	14,807	15,498	17,771	19,259	16,061
Gambling and lotteries	1,514	1,444	1,379	1,144	1,405	1,377
Fraud and usurpation	4,503	5,175	5,441	5,990	6,792	5,580
Forgery of documents, negotiable securities and seals or stamps	417	496	484	500	508	481
Injury	1,342	1,460	1,402	1,561	1,528	1,459
Receiving stolen articles	245	303	350	340	516	351
Murder	413	490	558	666	684	562
Burglary	641	678	651	800	757	704
Incendiarism	416	444	613	772	818	613
Interference with the execution of official duties	82	55	97	83	94	82
Destruction and concealment of another man's property	16	14	11	9	18	14
Forgery of currency	37	26	31	50	68	42
Abortion	24	26	39	32	30	30

/ Year	1929	1930	1931	1932	1933	Average for 5 years
Obscenities, illicit sexual intercourse and bigamy	183	221	204	243	279	226
House-breaking	261	298	248	282	288	275
Perjury	35	37	38	38	46	39
False accusation	12	10	15	15	12	13
Others	366	438	437	442	442	425
Offences against Special Laws						
Criminal law of the army and navy	42	41	28	46	56	43
The forest law	44	40	37	40	37	40
The military service law	9	18	8	9	12	11
The mail and telegraphy law	1	7	7	5	2	4
Others	559	924	858	971	1,368	936
Police laws, and prefectural laws	5,222	5,744	5,504	4,478	4,461	5,082
Total	29,354	33,190	33,938	36,287	39,480	34,450

VII YEARLY COMPARISON OF THE NUMBER OF NEW CONVICTS ACCORDING TO THE TERM OF SERVITUDE

/ Year	1929	1930	1931	1932	1933	Average for 5 years
Penal Servitude						
Penal servitude for life	38	43	38	57	61	47
Over 15 years	5	20	52	38	56	34
Less than 15 years	55	57	58	68	53	53
Under 10 years	692	765	760	890	996	821
Under 5 years	1,603	1,764	1,723	2,046	2,309	1,907
" 3 "	2,628	2,719	2,766	3,210	3,685	3,002
" 2 "	5,244	5,560	5,745	6,840	7,479	6,174
" 1 year	8,288	9,894	10,668	12,049	13,111	10,802
" 6 months	3,686	4,390	4,464	4,638	5,033	4,442
" 3 "	1,641	1,838	1,829	1,560	1,771	1,728
Total	23,970	27,050	28,103	31,396	34,554	29,015
Imprisonment						
For life	—	—	—	—	—	—
Over 15 years	—	—	—	—	2	0
Less than 15 years	—	—	—	—	1	0
Under 10 years	—	—	—	—	3	1
Under 5 years	—	—	—	—	11	2
" 3 "	1	—	—	—	1	0
" 2 "	4	5	7	2	1	4
" 1 year	2	11	6	3	5	5
" 6 months	17	28	54	69	48	43
" 3 "	110	316	249	304	368	269
Total	134	360	316	378	440	326
Detention	5,237	5,765	5,500	4,491	4,458	5,090
Death penalty	13	15	19	22	28	19
Total	29,354	33,190	33,938	36,287	39,480	34,450

VIII YEARLY COMPARISON OF THE NUMBER OF NEW CONVICTS ACCORDING TO THE NATURE OF CRIMES

	1929		1930		1931	
	First offenders	Recidivists	First offenders	Recidivists	First offenders	Recidivists
Theft	5,358	7,612	6,585	8,222	6,771	8,727
Burglary	683	243	455	215	436	207
Gambling and lotteries	963	551	931	513	856	523
Fraud and terrorism	1,750	1,585	2,133	1,734	2,264	1,861
Usurpation	804	364	933	375	974	342
Receiving stolen goods	135	92	216	87	225	125
Forgery of currency seals or stamps	25	12	19	7	21	10
	330	87	391	104	389	95

	1929		1930		1931	
	First offenders	Recidivists	First offenders	Recidivists	First offenders	Recidivists
Forgery of documents, obsceneities, illicit sexual intercourse and bigamy	149	34	189	32	167	37
Injury	1,034	307	1,117	341	1,100	302
Murder	375	34	423	55	498	49
Abortion	20	4	23	3	34	5
Sedition	25	7	18	—	19	1
Incendiarism	380	36	423	21	567	46
Others	501	239	569	265	578	248
Offences against special laws	540	101	894	117	826	116
Total	12,796	11,308	15,319	12,091	15,725	12,694

	1932		1933		Average for 5 years	
	First offenders	Recidivists	First offenders	Recidivists	First offenders	Recidivists
Theft	7,950	9,821	8,610	10,649	7,055	9,006
Burglary	541	248	519	215	468	226
Gambling and lotteries	721	423	893	512	873	504
Fraud and terrorism	2,669	1,992	2,917	2,231	2,347	1,881
Usurpation	1,001	328	1,203	441	983	370
Receiving stolen goods	229	111	357	159	236	115
Forgery of currency	39	11	62	6	33	9
Forgery of documents, seals or stamps	393	107	388	120	378	103
Obsceneities, illicit sexual intercourse and bigamy	196	47	252	27	191	35
Injury	1,231	329	1,178	350	1,132	326
Murder	604	52	606	73	501	53
Abortion	25	7	24	6	25	5
Sedition	39	2	43	3	29	3
Incendiarism	727	45	771	47	574	39
Others	569	253	582	272	560	256
Offences against special laws	917	142	1,332	146	902	124
Total	17,851	13,923	19,737	15,257	16,286	13,055

IX THE NUMBER OF CONVICTS AT THE END OF EACH YEAR

Classes	1929	1930	1931	1932	1933	Average for 5 years
Convicts	36,859	40,595	41,671	45,730	49,272	42,925
{ men	634	593	582	594	650	611
{ women	3,916	4,028	4,611	5,536	5,924	4,923
Accused	103	133	131	165	247	156
Detained in the house of labour	317	472	492	461	514	451
{ men	5	9	13	16	16	12
{ women	5	5	4	2	3	4
Infants	3	4	3	4	1	3
{ boys	41,097	45,700	46,778	51,729	55,713	48,208
{ girls	745	739	729	779	914	781
Total	41,842	46,439	47,507	52,508	56,627	48,985

X YEARLY COMPARISON OF THE NUMBER OF NEW CONVICTS

Classes	1929	1930	1931	1932	1933	Average for 5 years
Convicts	29,344	33,190	33,938	36,287	39,480	34,450
Suspects	16,644	16,864	16,635	17,498	17,500	17,040
Accused	27,995	34,413	33,737	36,533	38,594	35,354
Kept in the house of labour	5,456	7,909	9,658	11,272	10,851	9,029
Infants (a) born in prison	3	2	6	4	7	4
(b) taken in with mother	27	29	26	19	27	26
Total	30	31	32	23	34	30
Sum total	79,469	92,407	94,000	101,613	106,519	94,804

Prison System

Historical Background

A short historical retrospect of our penal system will show that it is only in comparatively modern times that "Imprisonment" became the recognized method for the punishment of crime.

Up till recent times the idea at the root of the Japanese penal system was minatory. In other words, the so-called principle of general prevention by warning the people at large against the commission of crimes by imposing heavy punishments upon criminals was adopted. Accordingly, the punishments were principally capital and corporal and extremely cruel in character. For instance, the Criminal Code of the Yedo Period (1502-1867) recognized the exposing in public of the heads of persons executed; crucifying, burning at the stake and other similar cruel punishments were imposed. In those days the jails were used merely as places of detention for various offenders until their trial, not as places for reforming offenders. Imprisonment was a very unusual form of punishment, for prisons were unknown and imprisonment was not a legal penalty.

Exile and Banishment Punishments which brought loss of liberty for specified periods to the criminal were exile and banishment. Persons punished with exile were sent to distant islands and places such as Satsuma, islands of the Goto group, Oki, Iki and Amakusa, and there they were forced to work under such miserable conditions that most of them died of starvation. Banishment was a penalty designed to expel persons convicted of crimes from certain fixed areas, and, as the result of the enforcement of this punishment in certain districts industries declined

and farms and fields lay waste, giving rise to many social evils such as the increase in the number of ronin (masterless samurai), mushukumono (vagabonds) and other dangerous elements. In 1778, therefore, as a remedial measure, the Tokugawa Shogunate instituted the system of kozan-yékifu (mine labour) and, in 1790, that of ninsoku-yoseba (places for the detention of convict-coolies). The system of kozan-yékifu dealt with vagabonds with no previous convictions. These were sent as coolies to pump water out of the Sado gold-mine. In and after 1788, those who had been punished with flogging or marked with tattoos as ex-convicts and were homeless or those who, it was feared, might perpetrate crimes in the future were sent there also.

Prototype of Present Prisons The ninsoku-yoseba were to all intents and purposes the prototype of present day prisons and penal servitude. These places for the detention of convict-coolies were located at Ishikawajima and Tsukudajima in Yedo and at Kamigo-mura, Tsukuba-gun, Hitachi province, and there vagabonds and those who had been punished with flogging or marked with tattoos as ex-convicts were detailed to work as oil pressers or at other kinds of labour for a fixed wage, with the ulterior object of giving them such instruction and training as would fit them to lead the lives of respectable members of society. In and after 1820 those who were punished with banishment heavier than that from the confines of Yedo (Tokyo) were put to forced labour for a fixed period of time in lieu of that punishment. Thus the ninsoku-yoseba, which had been instituted as workhouses for vagabonds, were turned into prisons for the reclama-

tion of criminals through ordered life and labour. In its correctional idea *ninsoku-yoseba* was entirely identical with the London "Bridewell," which was established in England in 1550 "to punish, correct, and reform by labour of a diversified nature," and the Amsterdam workhouse (*tuchthuis*) founded at the end of the 16th century and well known for its motto, "Schrick niet! ick wreeck geen quaet, maer dwing tot goedt, straf ist myn handt, mar lieflijk myn gemoedt." (Do not fear! I will not take revenge upon you for your misdeed; on the contrary, I wish to lead you to good. Although I am rigorous in handling you, my heart is filled with kindness towards you.) In and after 1790 the prisoners detained in the *ninsoku-yoseba* who behaved well and showed notable signs of penitence were liberated on certain conditions and this may be taken as the enforcement of provisional release of prisoners for the first time in Japan. When it is remembered that the system of provisional release of prisoners in Europe originated in a favoured release of prisoners from a convicts' colony in Australia in 1791, it is an interesting coincidence that the same system was inaugurated simultaneously both in the West and the East.

Improvement of 1872 In 1871, with a view to carrying out a great improvement in our prison system, the Emperor Meiji despatched the Vice-Director of Prisons, Mr. Jinsai Obara, to Hongkong and Singapore to inspect and study the prison systems there, and, as a result, the Prison Regulations, the first written law concerning prisons in Japan, were promulgated in 1872. According to the provisions of these regulations, the reclamation and education of the inmates of prisons should be based on love and benevolence.

At the beginning of the Regulations, it is stated: "Prison is a place for the incarceration of criminals for chastisement. They are placed there because of love and benevolence towards them and not because of any desire to inflict cruelty upon them; prison is intended for chastising them and not for subjecting them to hardships. Punishment is imposed on them because it is unavoidable and because it is a means of removing evil from the State. The authorities of prisons shall conscientiously observe this principle in treating prisoners." The Regulations were framed on a progressive system and on very advanced lines, but subsequently their operation was suspended for a time, and, in 1881, the Revised Prison Regulations were published. The Regulations were again revised in 1889, and, with the revision of the Criminal Code in 1907, the existing Prison Law was enacted that year and published the following year.

Management of Prisons

Prisons are placed under the control of the Minister of Justice. Prior to 1900, they were under the control of the Minister of Home Affairs, but, since that year, they have come under the supervision of the Minister of Justice. With the transfer of affairs relating to prisons from the Department of Home Affairs to the Department of Justice, the Bureau of Prisons was established in the latter Department for the administration of matters concerning the execution of sentences, prisons, provisional releases of prisoners, and the identification of criminals by finger-prints. A Director, several secretaries and a hygiene official of the Department, several clerks and three assistant-experts in finger-prints were appointed to conduct the business of the Bureau.

Today there are 52 ordinary prisons, 3 reformatory prisons for minors, and 103 branch-prisons, and of 1933, was 56,627. (See Table IX, p. 763.)

The kinds and regular number of prison officials are as follows:

Governor (officials of <i>sonin</i> rank)	43
Assistant-governors (officials of <i>sonin</i> rank)	34
Doctors (accorded treatment as officials of <i>sonin</i> rank)	93
Chaplains (accorded treatment as officials of <i>sonin</i> and <i>hannin</i> ranks)	142
Instructors (accorded treatment as officials of <i>hannin</i> rank)	37
Industrial work experts (accorded treatment as officials of <i>sonin</i> rank)	19
Assistant industrial work experts (accorded treatment as officials of <i>hannin</i> rank)	421
Assistant doctors (accorded treatment as officials of <i>hannin</i> rank)	44
Pharmacists (accorded treatment as officials of <i>hannin</i> rank)	10
Chief warders (officials of <i>hannin</i> rank)	479
(Including 5 chief wardresses)	
Interpreters (officials of <i>hannin</i> rank)	4
Warders (accorded treatment as officials of <i>hannin</i> rank)	6,669
(Including 171 wardresses)	
Workers, miscellaneous	627
Total	8,622

Prison superintendents are appointed from among officials ranking as governors and assistant-governors by the Minister of Justice, and branch-prison governors from among assistant-governors and chief warders.

Classification

In the Japanese prison system there are four kinds of prisons: (1) prisons for those sentenced to penal servitude; (2) prisons for those sentenced to imprisonment; (3) houses of detention for persons destined to spend time in detention, and (4) prisons of confinement for (a) those sentenced to death, (b) those awaiting trial. In view of the different characters of these prisons, they should, in principle, be established independently of one

another, and, in the case of their being erected in the same area, they are usually separated. At present, workhouses are not classified as prisons, but are attached to prisons for the sake of convenience.

Treatment of Prisoners

Object of Treatment As to what is the primary and fundamental purpose of punishment of imprisonment, nothing is stated in the Criminal Code or in the Prison Code now in force. Some Japanese jurists are of opinion that punishment must remain in its essence retributive and deterrent, accordingly a prisoner must be made to expiate his offence by a dull, soulless, and monotonous servitude, but such new scholars of criminal law and penology as Dr. Yeiichi Makino, Professor of Criminal Law, Tokyo Imperial University, Prof. Kameji Kimura and Dr. Akira Masaki, Assistant Director, Bureau of Prisons, Department of Justice, interpret it as a form of education and emphasize its socializing effects. Be that as it may, Japanese juridical authorities have for more than ten years endeavoured to reform prisons on the latter principle. On April 4, 1924, Dr. Kisaburo Suzuki, the then Minister of Justice, declared at a meeting of officials connected with prisons and criminal affairs, "The enforcement of punishments consists in the adoption of such measures as may improve the quality of convicted persons and socialize them as good and law-abiding members of society." Further, at a meeting of the governors of prisons and reformatory prisons for minors held on October 11, 1927, Dr. Kado Hara, the then Minister of Justice, gave the following instructions:

"The object of enforcing punishments on the inmates of prisons is to cause them to reflect on and repent their offences and to turn

them into good members of society. There are many and various means of attaining this object, but they are, in the final analysis, to cultivate their character, to give them training for different occupations, and to maintain their health in good condition, while improving the circumstances which constitute the causes of their offences so as to enable them to lead a decent life. In order to realize the end aimed at, therefore, a mere confinement and watching of them is not sufficient; on the contrary, it is necessary to know their individual characteristics and to inquire into and ascertain the motives and causes of their crimes, giving them thereby appropriate treatment."

Classification System Inasmuch as punishment by the restriction of personal liberty is enforced today principally with a view to education, criminals are properly classified according to ages, characteristics, terms of imprisonment, numbers and kinds of offences, and are then confined in different prisons so as to facilitate the enforcement of adequate measures for their education in accordance with their categories and, further, to prevent prisons from becoming breeding-places of crime through mutual contact and contagion as the result of promiscuous confinement of all grades. When it is impossible to distribute them among independent prisons and they are confined in the same area, prisoners are usually classified strictly and confined separately according to their categories. There are prisons for minors at Odawara, Kawagoyé, Himéji, Okazaki, Iwakuni, Kurumé, Morioka, and Hachioji and in Hokkaido for the confinement of those under 18 years of age sentenced to penal servitude or imprisonment, prisons for aged persons at Hamamatsu and Yonago and for

women at Tochigi, Miyoshi and Miyazu. Further, there are prisons for the confinement of persons sentenced to terms of imprisonment exceeding 10 years at Kosugé, Takamatsu, Hiroshima, Okayama, Miyagi, and Abashiri; the Abashiri agricultural prison is intended for training prisoners as agricultural labourers. At Uruga, located in an old warship anchored off the port, is a branch of the Odawara prison for minors. There juvenile offenders are given training as fishermen, and sometimes engage in coastal and deep-sea fishing in sailing-vessels or steamers.

In addition to the above-mentioned classified confinement, with a view to proper individualized treatment, they are examined by doctors, alienists, psychologists and educationists to find out their psychopathic idiosyncrasies, hereditary natures, physiological peculiarities, adaptabilities to occupations, educational possibilities, etc. in different prisons previous to their confinement. Further, a "social diagnosis" is made by collecting reports on them from city, town and village offices, police stations, schools, and organizations devoted to their protection in order that they may be suitably classified for treatment.

Progressive System A treatment on the progressive system is accorded to convicts who form the bulk of the inmates of prisons. This treatment aims at leading them to repent and their treatment is graded in proportion to their aspiration and diligence, thereby gradually bringing them to the conditions of ordinary social life. The relaxation of the enforcement of penalties not merely extends the scope of the personal liberty of convicts, but serves to cultivate a sense of responsibility on their part and strengthens their will for self-reclamation. In short, its chief pur-

pose is not to make "good convicts", but to turn them into "good citizens." The treatment in question does not apply to persons who are sentenced to imprisonment for less than 6 months, aged and decrepit persons, and those of unsound mental or physical faculties. Any prisoner committed for the first time is kept in solitary confinement for a certain period of time and a close study is made of him. In the basis of the results he is classified according to character, physical and mental condition, number of convictions, age, nature of crimes, term of service, home, health and thought.

The Four Stages The stages of the progressive treatment are: (1) those under investigation; (2) those in course of correction and training; (3) those in process of improvement; and (4) those who have developed a sense of responsibility. After being subjected to a study of character, convicts are received into the first class to begin with. Those who are accorded this treatment are given fixed marks according to the terms of imprisonment and promotion to higher classes is given only when a sufficient number of marks have been earned by diligence, good conduct, and growth of the sense of responsibility and of the will for self-improvement. Those belonging to the first and second classes are kept in confinement in association, while those belonging to the third class are kept in confinement in association in the day time, but in solitary confinement at night, those belonging to the fourth class are confined in a special room.

The Treatment Governors of prisons may cause convicts in each workshop to elect some from among them to keep the workshop in good order and look after other necessary matters. The elected ones must be popular, trustworthy and belong to

the third class. Prisoners belonging to the third class must jointly, once a month, carry out the work of cleaning and sweeping of prison grounds and keeping them in order. Except in cases of special need, prisoners belonging to the fourth class do not undergo physical examination or have their cells searched, and, further, are permitted to talk with one another so long as it does not interfere with the maintenance of discipline. They are also permitted to elect two representatives that they may express their desires to the authorities. These representatives are nominated by the governor of the prison concerned from among several candidates elected by prisoners belonging to the fourth class. Prisoners of the fourth class may be permitted to take a walk in a place designated for that purpose in the prison grounds in hours of recess, or hold meetings, take a walk in a group, or hold athletic meetings on days free from labour. They give a pledge to the governor, holding themselves responsible for the physical examination of those of their own class, for the search of their cells and keeping them in order, and the maintenance of order among themselves. In case of any one of them violating the pledge, the privileged treatment will be suspended for a part or all of them. Any one of those belonging to the first class who earns more than ¥5.00 for labour may be permitted to use less than one-fifth of the monthly total in buying postage stamps and in other ways that are deemed necessary; any one of those belonging to the second class less than one-fourth of the monthly total; any one of those belonging to the third class less than one-third of the monthly total; and any one of those belonging to the fourth class less than one-half of the monthly

total. While those of the first class are not permitted to change the kinds of labour they engage in, those of the second class and up are permitted to do so. Those who have superior skill or high efficiency and belong to the third class are charged with the task of directing industrial work and those who are similarly qualified in the fourth class are given the task of directing and supervising it. Those of the third class who have particularly superior skill and high efficiency are permitted to work for their own profit in time other than working hours, but that time is limited to two hours per day.

Moral Education Prisoners belonging to the first and fourth classes are chiefly given individual moral and religious instruction, while those belonging to the second and third classes receive the same instruction en masse. Listening to music broadcast on the radio and listening to the playing of gramophone records is permitted to those belonging to the second and higher classes. The time for the enjoyment of this privilege is fixed at twice a month for those belonging to the second class, which may be increased to three times and four times for those belonging to the third and fourth classes respectively. The governor may permit members of the third and fourth classes to hold moral cultural meetings, the number of times being limited to once for those belonging to the third class and twice for those belonging to the fourth. Prisoners of the fourth class are permitted to read books or see pictures in the prison library on days free from labour and may also borrow suitable newspapers and magazines from it. Those of the third and fourth classes may be permitted to play athletic games, the number of times for such amusements being

limited to once a month for those of the third and twice for those of the fourth class. While those belonging to the first class are permitted to interview or send letters only to their relatives and those who are concerned with their protection, those belonging to the second and higher classes are permitted to interview or send letters to those who do not interfere with their moral instruction, besides their relatives. The number of times of interviews and of writing letters increases in proportion to advances in class.

Provisions, drinks and other articles for the maintenance of the health of prisoners are uniform and do not differ according to classes. Those belonging to the fourth class are given white garments, are permitted to decorate their cells with flowers or pictures, and are lent table-ware and other sundry articles for common use.

Suspension of Progress In case any prisoner violates the prison regulations, the treatment on the progressive system may be suspended for up to a period of 3 months, but, in case it is recognized that there are certain circumstances which have to be taken into consideration before the suspension or in case the prisoner shows signs of sincere penitence, the enforcement of the sentence of suspension may be postponed for a fixed period of time. If he further violates the prison regulations during that period, the sentence of suspension will be enforced, but, if he passes the said period without any further violation, it will not be carried out. Further, in case a prisoner shows marked signs of penitence after the sentence has been delivered, this will be taken into consideration and the sentence repealed in full or in part. In case a prisoner who has been punished with suspension of the treatment

again violates the prison regulations, he may be transferred to a lower class according to the circumstances of the case. When a prisoner who has been punished with such degradation shows marked signs of penitence, he will be restored to his former category without reckoning his marks.

When any person of the fourth class has served one-third of his term of imprisonment and the prison governor considers him fit for provisional release, his case should be reported on to the Minister of Justice. Even one who belongs to lower classes and who has served one-third of his term and shows notable signs of penitence and is considered to be fully adapted to social life may be specifically granted provisional release, subject to the approval of the conference for provisional treatment on the progressive system.

Prison Labour

Paragraph 2 of the Japanese Criminal Code provides: "Any convict sentenced to penal servitude shall be detained in a prison and subjected to a fixed amount of labour." This "fixed amount of labour" constitutes prison labour. It is not legally imposed on convicts punished with imprisonment or custody, but its imposition is permitted in case they desire it. Since the institution of the ninsoku-yoseba at Ishikawajima, hard labour has been recognized as an essential part of the discipline of prisoners, and present-day criminal theory in Japan is opposed to punishment by the restriction of personal liberty without the imposition of hard labour. Accordingly, the prison authorities are encouraging industrial work at their own request by prisoners punished with imprisonment or custody.

The Three Systems Industrial work

in prisons is managed on three systems, viz.: the public account system, the "made-to-order" system, and the contract system. Under the public account system, a prison itself purchases materials, provides itself with the necessary machinery, implements and tools and makes prisoners manufacture or repair articles or carry on labour under the direction of prison officials, and sells the products. Under the "made-to-order" system, the chief materials are supplied by the outside buyers and prisoners either manufacture or repair articles under the direction of industrial work experts and assistant industrial work experts on the prison staff, and, when the articles are either manufactured or repaired, the wages of the workers and the cost of requisites in the manufacture or repair are calculated and the prices of the articles fixed by the standard of current prices. The articles are then delivered to the buyers on payment of the account. Under the contract system, applicants have to supply not only materials, machinery, implements and tools, but also experts for the direction of work, a prison only offering the labour of prisoners and receiving their wages in exchange. In the contract system now in force in Japan, the prison authorities undertake the supply of provisions, etc. to prisoners as well as their supervision and selection for work and nothing like the lease system that was in vogue in South American countries at one time is recognized.

Among the above-mentioned three different systems, the public account system does not permit any third party other than the prison officials to direct prisoners in the prosecution of their work as in the case of the contract system and, moreover, enables the prison authorities to select and impose on pris-

oners such kinds of work as are suited for their moral instruction and vocational education. In these respects, it is considered to be the most desirable for the enforcement of penological measures and its adoption is greatly encouraged.

Current Prices Considered When the selling prices of the articles produced in prisons are lower than current market prices, there is a fear of their adversely affecting private undertakings generally. Paragraph 17 of the prison industrial work regulations, therefore, provides: "The selling prices of the manufactures and agricultural products turned out under the public account system shall be calculated by the standard of current market prices, after taking into account the cost of materials and wages paid for the work, but the prices of articles intended for self-supply need not be fixed by the standard of current market prices." As, however, prisoners' wages are low, the selling prices are liable to become low, and the cry that prison products compete unfairly with products of private industries was heard many years ago, and as early as 1891, the competent authorities issued to the prisons throughout the country the following instructions. "As industrial work by prisoners may, it is feared, obstruct the business of the local people by reason of the methods adopted for its execution, care shall be exercised lest the local industrialists of minor standing should suffer or those private undertakings that bid fair to develop be nipped in the bud by using an excessive number of prisoners in one line of industry or by starting such industries as have hitherto been carried on by many local inhabitants and conducting them on a large scale." At the present day, the prisons principally adopt the "State use system", namely, a policy of manu-

facturing articles needed by the Government offices and public organizations and are taking pains to avoid competition with private undertakings as much as possible.

Training for Occupation In imposing work on prisoners, the most suitable kinds of work are given them not only by taking into consideration health, economy, terms of imprisonment, ability, occupations in free life, and future means of livelihood, but also by scientifically examining their individual adaptabilities to occupations. Industrial work in prisons is the most suitable means of giving moral instruction to prisoners; in particular, to train them in certain lines of work in the course of detention is the best way to prevent their again perpetrating crimes. Since 1926, therefore, houses for the training of prisoners for occupations have been erected in different prisons throughout the country and there prisoners have been trained for occupations requiring special skill such as those of carpenters, joiners, furniture-makers, tin-smiths, plasterers, timber-mill workers, painters, smiths, shoemakers, etc. The term of training is 6 months, during which fundamental theories and practice are taught.

Reward Given as Favour Working hours are from 12 to 13 hours a day and differ according to months. It is permitted to give educational or moral instruction to prisoners or allow them to take exercise within these hours. A time of recess—15 minutes in the morning and 25 minutes in the afternoon—is given them. All the income from the work of prisoners goes into the national treasury, irrespective of whether it arises from work or from wages. A prisoner who has worked may receive a reward as a favour. This gratuity varies from ¥0.20 to ¥10.00 per month and the sums are fixed

according to conduct, character, kinds of work, and the results of the work done. Any one who does particularly superior work is given an additional reward not exceeding ¥10.00. The reward for his work is, in principle, not given a prisoner until he is released from prison, but (1) in case a prisoner is entitled to ¥10.00 a month or more, and the money is needed to support his father, mother, wife, child, or to compensate the sufferer from his crime, or to purchase books or other necessary articles, one-third of the amount may be given him while in confinement, and (2) in case it is particularly necessary to do so for the sake of a prisoner, the entire reward may be handed over to him, irrespective of its amount and the way of spending it. In case a prisoner has been injured or has fallen sick while at work, and has died in consequence or has become unable to carry on any work, he may be entitled to a pecuniary reward according to the circumstances of the case. This reward is fixed within the limit of from ¥50 to ¥180 according to the details of the case.

The Hito Prisoners are given moral instruction en masse on national holidays, on the first two days of January and the 31st of December, or on Sundays. The same instruction is also given prisoners individually in case it is deemed necessary. It is chiefly given by chaplains appointed from among priests of the Shinshu sect. Adult prisoners who are uneducated and those under age receive an elementary school education. The latter are also given military training, which gives very satisfactory results in the way of moral instruction. Prisoners are permitted to read books and look at maps and pictures, unless it is injurious to the good order of the prison, but writings concerning current topics are for-

bidden. As, however, it is needful to keep them acquainted with changes in the condition of society, lest they should fall behind the times, a specially edited newspaper "Hito" (Man) is issued and distributed among them.

Aid of Discharged Prisoners

In its initial stage of development, the aid of discharged prisoners was largely undertaken by the Government. As already stated, the systems of "kazan-yekifu" and of "ninsoku-yoseba" were the origin of punishment by the restriction of personal liberty and incidentally of Government provision for the protection of ex-convicts. After the Meiji Restoration, in 1881, a system called "betsubo-ryuchi" (detention of discharged prisoners in separate quarters) was instituted, under which discharged prisoners who, after the expiration of their terms of sentence, had no one to go to, were detained in special quarters in prisons to enable them to make a living and to be protected by the authorities. As, subsequently, the number of these ex-convicts increased, this system had to be abolished in 1888, but, feeling that if those who had served their terms and had no one to look to or live with were allowed to live as they were inclined after their liberation, they might, it was feared, again lead a life of crime, the Government encouraged charitably disposed persons to carry on work for their welfare. Thus, the aiding of discharged prisoners by individuals and private organizations grew in scope.

The Organizations Among these organizations, one noted for its systematic constitution and management was the Shutsu-gokunin Hogo Kaisha (Ex-Convicts Protection Co.) established by Mr. Meizen Kinbara in Shizuoka prefecture. In 1907,

the Government decided to make an appropriation of ¥10,000 from the national treasury every year for the encouragement of the work and, later in 1912, the sum was increased to ¥30,000. With the development of the work, the number of organizations grew and was returned at 211 throughout the country at the end of 1912. In 1913, Baron Hachiroemon Mitsui, head of the House of Mitsui, donated ¥750,000 to the work, and with this money the Hosei-Kai, a foundation, was established for the control of, and extension of help to, various organizations interested in the work throughout the country. In 1925, the Government subsidy was increased to ¥100,000, and, moreover, since 1923, the Imperial House has made an annual grant to encourage the work, with the result that the work has made a steady development, the organizations today number approximately 800.

The Beneficiaries The persons protected by these organizations are not limited to those who have served the terms of their sentences, but include those who have been provisionally released; those, whose prosecution is suspended; those, the enforcement of whose sentences is suspended; and those who have been released from punishment for minor offences; as

well as the members of the families of those who are detained in prisons. The method of protection is roughly classified into (a) quarters and protection, (b) indirect protection, and (c) temporary protection. Those to whom the method (a) is applied are quartered in places specially selected by the above-mentioned organizations and are given board, lodging and clothes as well as employment. Those to whom the method (b) is applied are not directly protected, but visits are paid to their fixed places of residence from time to time so as to give them advice and suggestions. Those to whom the method (c) is applied are given only temporary help at the time of liberation from prisons such as providing them with clothes and other necessaries and journey money.

Today, there exists in the Department of Justice the Section for the Protection of Ex-Prisoners which undertakes the direction and supervision of the welfare work of various associations, but as it cannot be expected that a small Section can thoroughly undertake such widespread work, it is increasingly advocated in different quarters that a system for the promotion of the welfare of ex-convicts should be instituted and the work connected therewith conducted by the State.

Police System

Its Fundamentals

There are two aims of the national administration. One is the administration of political affairs for the direct benefit of the nation as a whole, and the other is to protect the public welfare of the individuals who compose the nation. The function of the police is to look after the latter. There is a judicial func-

tion of the police that goes side by side with the first one, but the principal significance of the establishment of the police system is in its protection of public welfare. The work it performs can be considered more in a negative aspect than a positive one for it does not promote welfare work so much as it prevents and roots out matters which are, or may be, detrimental

to peaceful social life. The police are endowed with authority to enforce the law or to give orders to the people. Police authority forms a part of the sovereign power of the State.

Authority Vested in State In Japan police authority is entirely invested in the State and is not delegated to other public bodies. In European countries, there are commonly the state police and the local police, the latter being under the jurisdiction of local authorities. In Japan all the police come under the direct administration of the State and no chiefs of local governments or local governments themselves have power over them except in a very few limited subjects. The police are administered in the name of the Emperor by the Minister of Home Affairs through the Superintendent-General of the Metropolitan Police, in Tokyo prefecture, governors of other prefectures and the Hokkaido procurator. Although nominally under the Governor of Tokyo prefecture, the Superintendent-General of the Metropolitan Police Board in Tokyo takes his orders direct from the Home Minister as the Board has many political responsibilities unknown in other prefectures. The appointment is actually a political one, the ordinary police business being carried out by the Chief of Police. In the Hokkaido and other prefectures the highest police official is the Chief of the Police Division. Under the Chiefs of Police are the police superintendents, inspectors, assistant inspectors and policemen. A police superintendent is appointed chief of a police station or secretary of a Police Division or in Tokyo and Osaka prefectures he may be appointed inspector over several police stations. A police inspector or an assistant police inspector may in some cases be

appointed chief or secretary of a police station. Policemen are divided into sergeants, indoor and outdoor service men, special service men, and police-detectives.

As mentioned above, police officials carry out judicial functions, and when acting in the capacity of judicial police officials and under the dictates of the public procurators they execute warrants of arrest or detention and arrest persons in flagrant offence. They may seize private possessions or search a house by order of a Court of Justice, an examining judge or a public procurator, or help a public procurator in the investigation of criminal cases.

In Time of Peace and Crisis In times of peace the maintenance of public order rests with the police. Individual policemen wear sabres. Pistols are carried only in special cases though in the police force there are troops of armed constables, while if matters become too serious and on special occasions, the gendarmerie is called on for help. The gendarme is a kind of military policeman, but at such times as the police force is too weak to keep public order, a Governor may ask for the aid of the gendarmerie. Moreover, at a time of crisis or extraordinary social disturbance, the army takes the place of the usual police force and acts with a despotic authority without limitation of the Law. The occasions which may call forth the military power for keeping public order are as follows: (1) when the country or a district is placed under martial law in times of war, (2) when a district is put under martial law for the maintenance of public order, (3) when the governor asks for the help of the army for subduing social disturbances, and (4) when a Divisional Commander recognizes the need of military power for keeping local

order in an emergency in which the request from other authorities is too late.

Police Business

Police business in Japan is many-sided, and may be classified into 4 main lines and 24 kinds:

Public Peace (a) supervision of publications. The publication of all kinds of printed matter should be reported and a copy of each must be sent to the authorities. Secret publication is strictly forbidden. A sum of money as guarantee of good faith has to be deposited by the publishers of newspapers or periodicals which deal with political problems. The name of the person responsible for any publication must be printed on the publication. Secret matters which come under the control of the public procurators, the Ministers of War and Marine, and the Minister of Foreign Affairs must not be reported in newspapers or periodicals. The Home Minister may prohibit the publication of a periodical or any other printed matter which he considers detrimental to public welfare and morals.

(b) Supervision and care of public meetings, organization of societies and mass movements. According to the Public Peace Police Law, all public meetings on political questions and some other meetings which come under control of the authorities must be reported to a police-station beforehand. A policeman may be present at such a meeting and may stop a speech or close the meeting. The organization of such associations or societies as may endanger the existing form of Government and system of private property is strictly forbidden. The said P. P. P. Law inflicts heavy penalties on those who break these regulations.

(c) Supervision of businesses or

commercial shops. Most businesses are free, but in some cases some kind of police supervision is necessary in the interests of public welfare, hygiene, prevention of damage, the safety of traffic, and social economy. For instance, such shops and businesses as inns, public baths, employment exchanges for geisha and prostitutes, credit information businesses, barbers, seal or stamp engravers, old clothes dealers, peddlers and stall-holders are inspected or taken care of by the police. Pawnshops and curio or second-hand shops are under special regulations and police inspection and supervision is thoroughly practised as many stolen articles find their way into these shops, and lead to excellent results in the arrest of thieves and burglars. Guides, scribes and employment exchanges for profit are also under special regulations and strict supervision.

Number of shops and houses under police supervision at the end of 1934 was as shown below:

	(Items less than 10,000 are omitted)	
	1933	1934
Pawn shops	13,300	12,738
Dealers in second-hand articles	270,968	283,873
Hotels	49,552	48,851
Boarding houses	10,436	10,902
Doss-houses	14,442	13,959
Restaurants	63,084	61,349
Cafés and bars	35,200	37,056
Geisha houses	20,949	21,197
Bath-houses	22,235	21,701
Eating houses	159,340	159,823
Employment exchanges	12,879	11,736
Printing houses	13,705	14,162
Barber's shops	74,694	74,687
Woman hair-dressers	55,095	53,314
Game houses	20,398	20,683
Building contractors	31,125	35,179
Shipping agents	11,839	12,250
Waggon-business men	149,446	148,881
Taxicab garages	23,381	27,898
Scribes	18,640	18,977
Bicycle dealers	37,676	39,545
Rikishamen	20,468	17,346
Factories	74,701	82,412
Theatres	35,095	33,866
Cinema theatres	77,577	79,955
"Yosé" (Story-telling houses)	16,889	16,589
Licensed prostitution houses	10,281	9,738

(d) Religion. It is the duty of the police to prevent the desecration of shrines and breaches of the peace in temple grounds. Superstitions and superstitious actions are prohibited by the Police Penal Law.

(e) Accidents. The police take charge in cases of fire, floods, explosions, of people being injured, etc. Regulations are issued on the handling of guns and explosives; the wearing of swords or the like is strictly forbidden; the handling or selling of poison is under a special regulation. Sulphur and oil businesses are under police care also. Buildings are under police supervision for their beauty, fire-proofness, and hygiene; factories, warehouses, theatres, and public resorts receive special attention. Crematories, slaughter-houses and incinerators must not be within residential or commercial districts of cities. Regulations regarding buildings are stricter than in Western countries because of the large number of wooden houses liable to fire and the

constant fear of earthquakes. Electricity and gas businesses must not endanger the lives of people. Mines are under a special police regulation as they are most liable to fatal accidents. Prevention of floods also comes into the sphere of police business.

For the prevention and extinction of fires, fire-brigades are established in cities under the control of the Chief of the Police Division in the prefecture. In Tokyo prefecture, a fire division is established in the Metropolitan Police Board and fire-brigade stations are located in different parts of Tokyo. In the larger cities, Osaka, Kyoto, Yokohama, Kobé and Nagoya special fire-brigade stations are established by the State. In the smaller municipalities fire-guilds are established at the expense of local self-governments. The firemen are volunteers and differ from those in the said cities who are officials of the State.

Statistics of fires happened during recent five years are as follows:

NUMBER OF FIRES AND AMOUNT OF DAMAGES

	1930-1934				
	1930	1931	1932	1933	1934
Number of fire	14,610	16,286	18,334	18,300	18,585
Number of houses damaged	22,280	22,334	25,690	19,461	44,364
Amount of damages estimated (In 1,000 yen)	55,637	54,976	61,730	35,397	170,728
Average amount of damages per one house estimated (in yen)	2,497	2,461	2,402	1,844	3,848

Note: Sudden increase in 1934 is due to the great fire of Hakodaté on March 22.

NUMBER OF PERSONS SUFFERED FROM THESE FIRES

	1930-1934								
	Firemen			People			Total		
	Dead	Injured	Total	Dead	Injured	Total	Dead	Injured	Total
1930	20	2,204	2,224	415	911	1,326	435	3,115	3,550
1931	17	1,806	1,823	473	922	1,395	490	2,728	3,218
1932	28	1,981	2,009	451	1,169	1,620	479	3,150	3,629
1933	20	1,761	1,781	570	960	1,530	590	2,721	3,311
1934	28	2,490	2,518	2,554	10,657	13,211	2,582	13,147	15,729

(f) Public morals. The police look after the maintenance of good public manners and morals. Japan

has a licensed prostitute system and forbids private prostitution and con-
niving at it. Through the efforts of

Christian and other religious and public bodies and the growth of other means of pleasures prostitution is growing less, but it is a duty of the police to see that the prostitutes are treated as humanely as possible as long as the term exists. All pleasure resorts such as theatres, places of performances, wrestling, movies, etc. are carefully supervised and any obscene or immoral performances prohibited.

Restaurants, dining rooms, bars, cafes and other eating places are under police supervision. The laws for prohibiting liquors and smoking to minors, the prohibition of lotteries, misbehaviour in the street or outdoors, and the regulations regarding street advertisements and the erection of monuments must be enforced.

(g) The care of men who are a danger to public peace and welfare, juveniles who are addicted to bad habits, ticket-of-leave men, the insane, beggars and vagrants are supervised by the police.

(h) Actions which may harm others such as forcing an interview, extorting contributions, blackmail, causing disturbances, obstruction, etc., are forbidden by the Police Penal Law. Deceitful actions, spreading false reports, and the mishandling of dead bodies come under the care of the police. Obstructing officials in pursuit of their duty is strictly forbidden. The care of lost articles, prohibition of deceitful religious actions, the supervision of "mujin-ko" and "tanomoshi-ko" or mutual financing associations come under police power to some extent.

Public Hygiene The problem of the health and hygiene of the people is one of the greatest concerns of the Department of Home Affairs, and in many points the responsibility of looking after such cannot be confined to the police alone, though in

its direct management the police have much to do.

(a) **Prevention of epidemics.** For the prevention of epidemics there are many laws in force, the most important of them being the Epidemic Prevention Law, the Regulation for the Medical Inspection of Aviators, the Seaport Quarantine Law, the Vaccination Law, the Tuberculosis Prevention Law, the Trachoma Prevention Law, the Leprosy Prevention Law, the Venereal Diseases Prevention Law and the Parasites Prevention Law. The water police help in the medical inspection of passengers and goods arriving in vessels from abroad. The annual compulsory cleaning of individual houses and public buildings, drains, wells, dumping grounds etc. is supervised by the police. When an epidemic breaks out policemen are used to try and confine it to as small an area as possible.

(b) **Medical.** As the health and welfare of the people depend on proper medical attention, doctors, dentists, midwives, nurses, masseurs and acupuncturists are under special regulations, as also are druggists and pharmacists. Poisonous chemicals are well looked after.

(c) **General Health.** A law is in force prohibiting the sale of unwholesome food, and utensils for eating, drinking and preparing food are under police supervision. (See Chapter XXXII.)

Traffic Police (a) **Road.** The police are responsible for safety on the streets. "Walk on the left" is the rule of the road in Japan.

(b) **Vehicles.** Railroads, electric cars, automobiles, trucks, waggons, rikishas, bicycles etc. are under police supervision.

(c) **Water police.** The water police look after foreign-going vessels entering and leaving open ports, navigation in closed ports, rivers

and lakes, and the business of steamship companies doing a coastal trade.

(d) **Ocean navigation** has many international ramifications and though there are countless matters which ought to come under police supervision it is separated from common police business and put under the administration of the Department of Communications.

(e) The aviation police are put under the management of the Minister of Communications.

(f) Colonial police come under the control of the Minister of Overseas Affairs except in some cases which may come under the supervision of local governments.

Number of accidents caused by traffic is as shown below:

Walkers	1930	1931	1932	1933	1934
No. of cases	27,606	26,776	26,933	24,110	24,275
Killed	1,733	1,676	1,743	1,787	1,960
Injured	25,433	24,568	25,173	22,493	22,454
Automobiles					
No. of cases	13,473	14,938	16,832	16,430	20,357
Killed	216	270	280	318	399
Injured	5,542	5,955	6,792	8,269	10,053
Bicycles					
No. of cases	11,420	15,544	16,447	13,698	13,717
Killed	149	187	286	266	306
Injured	7,815	10,201	11,459	10,421	11,099
Others					
No. of cases	10,819	11,565	11,009	10,405	10,993
Killed	438	439	492	550	561
Injured	5,831	5,614	5,835	5,776	6,593
Total					
No. of cases	63,411	68,823	71,221	64,648	69,342
Killed	2,536	2,572	2,801	2,921	3,226
Injured	43,621	46,328	49,259	46,959	50,204

Police and the People

The function of the State, as far as it concerns the economic life of the people is largely protective and administrative and certain laws and ordinances of the State have to be imposed on various businesses in order that the people shall be fully protected. The police works by orders from higher authorities at the request of the Ministers of Agriculture and Forestry, Commerce and Industry, and Finance.

(a) Banks, savings banks, mutual financing associations, negotiable security businesses, trust businesses, insurance businesses, commercial exchanges, the central whole-

sale markets in the six largest cities, foreign trade business in important articles, weighing and measuring machine businesses, and auditors partially are under police supervision or limitations.

(b) Agriculture is supervised by the police in such matters as the prevention of the spread of noxious insects, the control of plants imported or exported, the fertilizer industry, agricultural warehouses, the sericulture industry and the control of rice imports and exports.

(c) The hygiene and prevention of epidemics among domestic animals is looked after by the police. Many laws are enforced regarding the improvement of animals, and

police power is needed for a proper practice of them, especially in connection with horse-racing.

(d) Forestry police mainly prevent damage to the forests.

(e) Fishery police protect the propagation of aquatic animals and at the same time look after the safety of the fishermen. There are many laws and regulations on fisheries, whale-fishing, fishing boats, etc.

(f) The hunting of beasts and birds is limited to those mentioned in the revised Game Laws of 1918, the seasons and districts of hunting are put under police regulation.

(g) For the protection of labourers there are numerous laws in force, for instance, the Factory Law, Laws on the limitation of age of

factory or marine workers, the Labour Accident Prevention Law, the Mine Law, Ordinance regarding the enlistment of workers. Policemen either help factory or mine inspectors or directly handle matters mentioned in these laws. Labour movements and disputes many times call for the use of police power.

Police Stations and Officials

At the end of 1934 there were 1,200 police stations, 24 water-police stations, 4,643 branch stations, 14,147 police-boxes.

At the same date there were 52 chiefs of police divisions, 339 police-superintendents, 1,632 police inspectors, 3,627 assistant police inspectors, 60,347 police sergeants and policemen, total being 65,997.

EXPENDITURES FOR POLICE BUSINESS

	(Budget in yen)				
	1931-32	1932-33	1933-34	1934-35	1935-36
Salaries	¥ 67,153,356	66,898,289	69,831,646	72,444,482	74,046,784
Expenditures for police stations	9,206,728	8,634,579	9,005,192	9,614,373	9,081,669
Secret service funds	738,636	683,895	678,215	783,858	867,408
Total	77,098,720	76,216,763	79,515,053	82,842,713	84,945,861
Repairs of police stations					
Ordinary	670,817	677,007	634,671	623,979	623,270
Extraordinary	1,419,048	1,308,673	1,558,666	2,380,141	3,276,363
Grand Total	79,188,585	78,202,443	81,708,390	85,846,833	88,745,494
Average expenditures per one family	6.24	6.16	6.43	6.76	6.97
Average expenditures per one person	1.23	1.21	1.27	1.33	1.37

CHAPTER XXVIII

EDUCATION

Historical Background

Chinese letters and Confucian books were first introduced to Japan in the third century, and it was then that the civilization of the country made a real start. From the nearby peninsula of Korea came sericulture, weaving, brewing, and the art of the blacksmith. It was about this time that the Imperial Prince Wakairatsuko established a Court School.

In the sixth century Buddhism came to the Island Empire to give added material progress to the Japanese civilization, and in 607 the Imperial Prince Shotoku-taishi (see Chapter III) caused the Horyuji Temple to be built at Nara and there he established a school in the temple. These were the earliest schools of Japan.

In the latter half of the seventh century a college in the capital and some provincial schools were established to educate officials, according to the Taiho Laws. Later, in the Heian Age, the courses of study became encyclopædic and both public and private schools were established. In the Muromachi Age school education suffered a decline and only two places of study were recorded, namely, the Kanazawa Library and Ashikaga School, although there might have been private lecture halls kept secretly by scribes and Buddhist monks.

The Tokugawa Shogunate encouraged the study of Confucianism and several schools of this moral system and Chinese philosophy were introduced, and education extended

to the common people. There were established many schools; the highest one was called the Shohei Hill Academy or Shohei School, which was established by the Shogunate. The central government had many other schools, while each local clan government also had its own schools. In addition to these, private schools and "tera-koya" appeared all over the country for the education of the people in general.

"Tera-koya" Education

The "tera-koya" needs some special explanation, as it played the most important part in the education of the masses before the Meiji Era, and laid the foundation for the remarkable progress of elementary education in new Japan.

The word "tera" means Buddhist temple and "koya" children's house, so the tera-koya was a school for children established by a Buddhist temple. It was originated many years before the time of the Tokugawa Shogunate by Buddhist monks. Side by side with the Governmental schools for the samurai class, tera-koya education began to spread in the Yedo age among the common folks in business and farm quarters. It gradually ceased to be entirely in the hands of the monks, and assumed a form and nature quite different from the original.

The school-house was no longer in or attached to a temple; teaching was not restricted to the monks; the teacher might be a samurai, monk, doctor or Shinto priest. "Tera-koya" became merely a general name, and the founders of

tera-koya schools chose any name they liked for their own. The size of the schools was diverse, the largest one accommodating as many as two or three hundred pupils. There was rarely more than one teacher, but in the larger schools there might be an assistant. The age of the pupils ranged from 6 to 15 years. It was co-education, although the sexes sat apart. The courses of study were commonly penmanship, Japanese literature, and the use of the abacus, with such optional subjects as Chinese literature, poem composition, sewing, flower-arrangement or tea ceremonies. Many textbooks on moral precepts and letter writing were published and used in these schools. These schools were usually kept up largely out of the pocket of the school master himself, for his work was entirely voluntary, inspired by pure devotion to service, for which he gained the honour and respect of the community. According to the report of the Department of Education, there were 15,862 tera-koya in Japan at the beginning of the Meiji Era, or just before the establishment of the new elementary school system.

It must be remembered also that technical schools had made considerable progress in old Japan. Medical schools in particular were established in the Taiho Era, and medical science made steady progress toward the middle of the Yedo Age. The Tokugawa Shogunate established a medical school in 1765, and local clan lords followed this example. There were several private ones well known to the people. But these taught the Chinese method of the science, and the "materia medica" was almost entirely of herbs and animal matter. The modern or Western medical science and its system and practice were introduced through Dutchmen at the end of the

Yedo Era, so we may say that medical science was the earliest of all the sciences that were learned by the Japanese people from the Westerners.

Educational Administration

The present educational system of Japan dates from 1872, the 5th year of Meiji, when elementary education was made compulsory. The new system was established, in the main, after the examples of the French system, and the entire country was divided into 7 university districts, each of them consisting of 32 middle school districts and each of which was again divided into 210 primary school districts, or one primary school for 600 of population. The national educational principles are stated in the Imperial Rescript on Education issued on Oct. 30, 1890. This world-renowned rescript was published to lay down leading ideas and principles for the guidance of the Japanese, and it reads as follows:

"Know ye, Our Subjects!

Our Imperial Ancestors have founded Our Empire on a basis broad and everlasting and have deeply and firmly implanted virtue; Our subjects, ever united in loyalty and filial piety, have from generation to generation illustrated the beauty thereof. This is the glory of the fundamental character of Our Empire, and herein also lies the source of Our education. Ye, Our subjects, be filial to your parents, affectionate to your brothers and sisters; as husbands and wives be harmonious, as friends true; bear yourselves in modesty and moderation; extend your benevolence to all; pursue learning and cultivate arts, and thereby develop your intellectual fac-

ulties and perfect your moral powers; furthermore, advance the public good and promote common interests; always respect the Constitution and observe the laws; should any emergency arise, offer yourselves courageously to the State; and thus guard and maintain the prosperity of Our Imperial Throne, coeval with heaven and earth. So shall ye not only be Our good and faithful subjects, but render illustrious the best traditions of your forefathers.

The way here set forth is indeed the teaching bequeathed by Our Imperial Ancestors, to be observed alike by Their Descendants and subjects, infallible for all ages and true in all places. It is Our wish to lay it to heart in all reverence, in common with you, Our subjects, that we may all thus attain to the same virtue."

The 30th day of the 10th month
of the 23rd year of Meiji.
(Imperial Sign Manual)
(Imperial Seal)

All school education in Japan is supervised by the State, being partly entrusted to local public bodies such as the prefectural councils, towns and villages.

Private individuals are also allowed to found schools and universities, although here too the Government does not give much latitude of method or scope, and the uniformity of school education in all parts of the Empire has worked well in bringing the degree of advancement in modern ways and thought to almost the same level throughout the land, and greatly strengthening the national spirit and unity of the people.

The points entrusted to local public bodies are chiefly financial matters,

pertaining to the establishment and maintenance of schools, some of which are obligatory while some are left to the discretion of local bodies. The obligatory matters are the establishment by Hokkaido and the prefectures of normal schools, middle schools for boys and girls, schools for the blind and for the deaf-and-dumb, technical schools by order of the Minister of Education, and that of ordinary elementary schools by cities, towns and villages. Municipalities may not establish higher normal schools, and Hokkaido and the prefectures alone are authorized to establish universities, higher schools and normal schools.

The main principles regarding the nature and objects of schools, their scholastic terms, curricula, organizations, entrance qualifications, qualifications for the teachers, equipment, means of meeting the expenditure, and tuition fees are prescribed by Imperial Ordinances. The establishment of schools by public bodies or private individuals must be approved by the local supervising authorities, which also exercise control to a certain extent over their methods of education and finances.

Religion is, on principle, excluded from the educational agenda of schools. In all schools established by the Government and local public bodies, and in private schools whose curricula are regulated by laws and ordinances, it is forbidden to give religious instruction or to hold religious ceremonies either in or out of the regular curricula.

Education in the colonies comes under the control of the colonial governments, and the military schools belong to the War and the Navy Departments, while there are some technical schools which come under the supervision of other Departments. But with these exceptions, it may be safely said that the

Minister of Education has charge of all matters relating not only to school education, but also to what may be termed social education, such as art, science, literature and religion. He is assisted by the parliamentary councillor in the conduct of political affairs and in matters which are connected with the business of the Imperial Diet. The vice-minister assists him in the business part of the Department.

Of the affairs within the jurisdiction of the Department, those that are related to education, art, science, and literature are distributed respectively among the Bureaux of Higher Education, General Education, Technical Education, Social Education, School Books, and Student Control, and those pertaining to religion are under the direction of the Bureau of Religion. Those affairs which do not properly belong to any one of these bureaux are dealt with in the Minister's Secretariat. In addition there are school superintendents, who inspect schools and directly supervise educational affairs; supervisors of social education who direct and supervise social educational affairs; superintendents of compilation who compile and examine text-books; and supervisors of school hygiene who look after the sanitary conditions of schools. Various advisory committees with prominent men in and out of office as members are instituted to help the Minister of Education in matters of wider scope.

The Minister of Education is authorized to direct and supervise the Superintendent of the Metropolitan Police and the local governors in matters under his control.

The prefectural governors direct and supervise their subordinate officials and exercise supervision over the public and private schools, kindergartens and libraries within their

jurisdictions. There is a Division of Educational Affairs in each prefecture which has control of matters relating to education. School inspectors and sub-inspectors in it inspect schools and conduct educational business directly.

The mayors of cities and towns and the heads of villages deal with affairs regarding elementary schools and exercise control over them. The mayors of cities, moreover, have authority to make recommendations to prefectural governors in the appointment of the principals and teachers of elementary schools. The municipalities have school boards to look after elementary schools.

School Education

As is shown in the following tables, Japan is well provided with schools, ranging from kindergartens up to universities. Almost all the elementary schools are controlled by public bodies.

Conditions are different when we come to secondary education, for which there exist a considerable number of private schools, and in the case of schools of the highest grade the private establishments quite outrange in number those under official control.

Only 18 out of the 45 existing universities were built by the Government, 2 by public bodies and the rest by private bodies.

The total number of schools in Japan proper and their enrolment in the last five years, 1930-1934, is shown below:

Year	Schools	Students
1934	45,903	13,760,200
1933	45,793	13,408,971
1932	45,766	13,073,354
1931	45,898	12,847,730
1930	46,803	12,549,320

Classified according to types, the

number of schools in Japan proper in March, 1934, with the number of students enrolled, was as follows:

	Schools	Students
Elementary Schools	25,702	11,035,278
Middle Schools	554	327,261
Girls' High Schools	975	371,807
Business Schools	1,041	316,846
Business Continuation Schools	15,140	1,271,530
Higher Schools	32	20,300
Universities	45	70,893
Colleges	117	67,180
Higher Trade and Industrial Colleges	54	23,082
Normal Schools	103	32,817
Higher Normal Schools	2	1,752
Higher Normal Schools for Women	2	846
Special Institutes for the Training of Teachers	1	58
Institutes for the Training of Business School Teachers	4	362
Institutes for the Training of Business Continuation School Teachers	43	1,014
Schools for the Blind	78	4,700
Schools for the Deaf and Dumb	60	4,791
Miscellaneous Schools	1,950	209,674
Total	45,903	13,760,200
Kindergartens	1,786	183,735
Young Mens' Training Institutes	15,576	819,968

The figures for schools refer to those existing on March 31, while the figures for students refer to those on March 1.

Elementary Education

Elementary education in Japan is compulsory and has attained to its present high level of excellence through many improvements since the promulgation of the School Ordinance in 1872. In the Imperial Ordinance relating to Elementary Schools the object of elementary education is defined as follows:

"Elementary schools are design-

ed to give children the rudiments of moral education specially adapted to make of them good members of the community, together with such general knowledge and skill as are necessary for the practical duties of life, due attention being paid to their bodily development."

According to the system of compulsory education all children from 6 to 14 years of age are called school-age children, and those who exercise parental authority over them, or their legal guardians, must send them either to the ordinary elementary schools established by the cities, towns or villages until they complete the required course of study, or to schools established by the Government, prefectures or by private individuals, recognized as equal to the ordinary ones above mentioned. The law is not enforced when a child is unfit for study owing to physical or mental deficiency or cannot be sent to school by reason of extreme poverty. There is a provision which requires the employers of school-age children to see that the work imposed does not interfere with their going to school.

The responsibility of establishing ordinary elementary schools is placed upon cities, towns and villages, and they are making efforts to maintain schools even in the dire depression of the past few years. At the same time, however, special provisions permit the State Treasury to bear part of the expense, and the diffusion of elementary school education in Japan proper is all but ideal, the number of the school-age children attending schools maintaining the rate of 99.53% for the past five years.

The full figures are as follows:

These figures represent the condition existing on March 31 of the respective years.

Year	School-age Children	Children Attending Schools	Children not Attending Schools	Percentage of Children Attending Schools
1924	11,024,532	10,978,718	45,814	99.38
1933	10,754,962	10,708,930	46,032	99.57
1932	10,392,794	10,344,642	48,152	99.54
1931	10,105,941	10,056,530	49,411	99.51
1930	9,883,785	9,822,847	50,938	99.48

Elementary schools are divided into two grades, namely, ordinary or lower and higher. The former are for the beginners and their course extends over six years. The latter are for those who have completed the lower course, and their courses are of two or three years' duration. The subjects taught are morals, Japanese language, arithmetic, Japanese history, geography, science, drawing, singing, sewing (for girls only) and gymnastics. In the higher courses, either one or more subjects out of handicraft, agriculture, industry, commerce and domestic science (for girls only), are added, and if local circumstances make it advisable, handicraft in ordinary elementary schools and foreign languages and other useful subjects in higher elementary schools may also be taught.

An elementary school may comprise both the ordinary and the high-

er elementary school courses and may equip itself with a supplementary course of not more than two years.

Under the present system of compulsory education the father's responsibility ends when his child has graduated from the lower elementary school. But the ordinary elementary education of children is not sufficient for the existing conditions of society, and many cities, towns and villages establish higher elementary schools either independently or in connection with ordinary ones. For the same reason, many business continuation schools are established to give elementary school graduates such education as may be of use in various trades.

The following table will give a general idea of the conditions of elementary schools as they were in 1934.

Schools	Governmental	Public	Private	Total
Ordinary Schools	—	6,997	82	7,079
Ordinary and Higher Schools	4	18,434	19	18,457
Higher Schools	—	165	1	166
Total	4	25,596	102	25,702
Classes				
Ordinary and supplementary	55	186,167	643	186,865
Higher and supplementary	7	34,606	37	32,650
Total	62	220,773	680	221,515
Teachers	94	244,729	900	245,723
Pupils	2,345	11,006,194	26,739	11,035,278
Graduates	457	2,119,860	4,438	2,124,755
Entrants	477	2,805,756	5,366	2,611,599
Daily Attendance				
Ordinary	2,042	9,144,805	24,271	9,171,118
Higher	202	1,508,604	1,323	1,510,129
Total	2,244	10,653,409	25,594	10,681,247
Percentage of Daily Attendance				
Ordinary	95.07	96.81	95.90	96.81
Higher	96.65	96.45	97.28	96.45
Average	95.21	96.76	95.88	96.76

Teachers and Salaries There are more male teachers than female in the Japanese elementary schools, and they are classified according to their education and special abilities, as (1) elementary school teachers (2) lower elementary school teach-

ers, (3) teachers on special subjects, (4) assistant teachers, and (5) substitute teachers. The teachers belonging to the first two classes are regular teachers properly qualified for the elementary education of children.

ELEMENTARY SCHOOL TEACHERS CLASSIFIED

(March 1, 1934)			
	Male	Female	Total
Ordinary Elementary Schools			
Regular teachers	114,144	53,912	168,056
Special teachers	3,688	6,625	10,313
Assistant teachers	3,728	2,043	5,771
Substitute teachers	10,295	10,171	20,466
Total	181,855	72,751	204,606
Higher Elementary Schools			
Regular teachers	33,795	2,693	36,488
Special teachers	1,798	1,188	2,986
Assistant teachers	55	6	61
Substitute teachers	1,189	393	1,582
Total	36,837	4,280	41,117
Grand total	168,692	77,031	245,723

TEACHER'S MONTHLY SALARY

(Public Schools)					
(March 1, 1934)					
Ordinary Elementary School	(1)	(2)	(3)	(4)	(5)
Maximum, Male	¥215	125	145	65	145
„ Female	120	95	105	60	65
Minimum, Male	10	23	1	10	1
„ Female	25	18	1	6	1
Average					
Male	68	51	51	39	38
Female	48	43	41	34	27
Average	62	47	44	37	33
Higher Elementary School	(1)	(3)	(4)	(5)	
Maximum, Male	¥215	148	60	145	
„ Female	115	105	42	115	
Minimum, Male	12	1	23	1	
„ Female	12	1	29	1	
Average					
Male	69	55	41	43	
Female	53	45	37	37	
Average	68	51	41	42	

Secondary Education

For the secondary grades there are middle schools for boys, girls' high schools, business schools and business continuation schools.

Middle Schools The course of the middle school extends over five

years, and its object is to give boys such a higher general education as will fit them to be useful members of society after their graduation. The subjects taught are morals, civics, the Japanese language and Chinese classics, history, both Japanese and foreign, geography, a for-

sign language (either one of English, German, French or Chinese), mathematics, science, technical studies, drawing, music, practical work (carpentering, gardening, etc.) and gymnastics.

From the fourth year upwards, the subjects are selected and arranged into two groups, the pupils making choice between the two. Under special circumstances, however, the Minister of Education may authorize a school in which either of the two groups may be dispensed with. This dual system of curriculum is of benefit on the one hand to the pupils who wish to take up employment immediately upon graduation, and on the other to those who wish to advance to higher-grade schools.

To the regular course a supplementary course of one year or less may be added, and, if local circumstances require, a preparatory course of two years may also be provided. A boy who desires to enter a middle school must complete either its preparatory course or the full course of an ordinary elementary school.

Those who are twelve or more years of age and in possession of adequate scholastic attainments may be admitted upon examination. Those who have completed the fifth year (the course of the ordinary elementary school ends with the sixth year as mentioned above) of an ordinary elementary school and are physically well developed and have shown excellent scholarship are allowed to apply for the entrance examination, even though under twelve years of age; this is to give a chance to specially gifted boys.

The following are the figures for middle schools and their pupils on March 1 of each year:

Year	Schools	Pupils
1934	574	327,261
1933	558	329,459
1932	558	336,196
1931	557	345,691
1930	535	348,684

A general idea of the condition of the middle schools in 1933-1934 may be obtained by the following table of figures:

	Governmental	Public	Private	Total
Schools	2	434	118	554
Classes, regular course	25	6,259	1,276	7,560
Number of boys in one class	38.96	43.51	42.08	43.25
Teachers, licensed	55	9,655	2,106	11,816
.. non-licensed	—	Female 3	Female 4	Female 7
		964	558	1,522
		Female 8	Female 4	Female 12
Total	55	10,630	2,672	13,357
Pupils, regular course	974	272,342	53,583	326,900
Pupils; Supplementary course	—	Preparatory 307	14	14
Total	974	272,649	53,638	327,261
Graduates, regular course	163	48,433	10,779	59,375
.. Supplementary course	—	Preparatory 426	62	488
Total	163	48,859	10,841	59,877
Applicants, regular course	1,335	92,725	24,869	118,929
.. Supplementary course	—	2,038	107	2,145
Total	1,335	94,763	24,976	121,074
Admitted, regular course	206	62,326	13,925	76,357

	Governmental	Public	Private	Total
Admitted, Supplementary Course	—	1,858	101	1,459
Total	206	63,684	12,926	76,816
Left school, regular course	45	19,011	7,012	26,068

Girls' High Schools The system of high schools for girls is made flexible to suit practical requirements. A girl who has completed elementary school or has equivalent scholastic attainments and is twelve years or more of age may be admitted to a girls' high school. The course of the girls' high school extends over four or five years, and those schools whose entrance requirement is the completion of the higher elementary school or the possession of the same or higher scholastic attainments are allowed to shorten their course to three years. There is another kind of girls' high school which is called Girls' Domestic High School, where domestic science is the main course of study, and its regular course extends over two to four years. Girls who wish to take only one part of the course are allowed to do so on application. A supplementary course of two years or less may be provided for the benefit of those who wish to continue their study after completing the regular course, and a post-graduate course or a higher course of two or three years for the purpose of giving higher education. In the cases of the higher course, higher qualifications are required of the teachers and its standard is brought up almost to that of the higher school for boys.

The subjects taught in a girls' high school are the same as those taught in the middle schools, but with the addition of domestic science and sewing, the required hours of study being from 28 to 29 a week. In the case of the Girls' Domestic High School, technical study is added and the hours for domestic sci-

ence and sewing are double those of the ordinary high school, the time allowed for other subjects being shortened, and foreign languages omitted altogether. Under special circumstances the foreign language, drawing and music may be omitted, and if local circumstances require, pedagogics, manual arts, technical studies and other useful subjects may be taught in addition to the normal curriculum. In such cases the total weekly hours may be increased to a little over 30. The curriculum of a domestic course of three years, the entrance requirement of which is the completion of the first year of the higher elementary school, is to be suitably drawn up on the basis of that of a domestic course of two years, the entrance requirement of which is the completion of the higher elementary school, and be submitted to the Minister of Education for approval.

The progress of female education is phenomenal in modern Japan and girls' high schools have taken very marked strides in recent years both in number and quality. At the end of March, 1934, there were 975 girls' high schools in Japan proper, many of them being provided with, or contemplating the provision of, a post-graduate course or a higher course.

The number of schools and girl students on March 1 of each year was as follows:

Year	Schools	Girls
1934	975	371,807
1933	963	361,739
1932	980	362,625
1931	975	368,999
1930	970	367,726

GIRLS' HIGH SCHOOLS, 1933-1934

Schools :	Governmental	Public	Private	Total
High School	2	564	224	790
Domestic H. S.	1	166	18	185
Total	3	730	242	975
Classes :				
Regular course	20	5,480	1,906	7,406
In a class, average	46.40	46.15	43.66	45.43
Post graduate	—	28	—	28
In a class, average	—	21.82	—	21.82
Domestic High School	4	591	107	702
In a class, average	46.75	35.37	37.93	35.83
Teachers, licensed :				
High School, regular course, male	16	5,105	1,549	6,770
female	34	3,810	1,882	5,726
Post graduate, male	—	57	—	57
female	—	8	—	8
Domestic High School, male	5	311	81	397
female	3	514	86	603
Teachers, unlicensed :				
High School, regular course, male	—	386	478	864
female	—	191	416	607
Post graduate, male	—	8	—	8
female	—	9	—	9
Domestic High School, male	—	102	39	140
female	—	83	33	116
Total, male	21	5,969	2,246	8,236
female	37	4,615	2,417	7,069
Total	58	10,584	4,663	15,305
Pupils :				
Regular course	928	252,910	87,144	340,982
Post graduate course	—	611	—	611
Higher course	141	753	471	1,365
Domestic H. School	187	20,904	4,059	25,150
Elective pupils	—	353	44	397
Supplementary course	15	2,853	434	3,302
Total	1,271	278,384	92,152	371,807
Graduates :				
Regular course	179	55,509	17,663	73,351
Post graduate course	—	246	—	246
Higher course	42	247	170	459
Domestic H. School	46	6,267	1,048	7,361
Elective pupils	—	229	28	257
Supplementary course	15	2,830	436	3,281
Total	282	65,328	19,345	84,955
Applicants :				
Regular course	1,168	98,614	48,855	148,637
Post graduate course	—	336	—	336
Higher course	86	435	403	924
Domestic H. School	199	8,652	1,425	10,276
Elective pupils	—	357	65	422
Supplementary course	17	3,333	600	3,950
Total	1,470	111,727	51,348	164,545
Admitted :				
Regular course	193	66,183	23,201	89,577
Post graduate course	—	302	—	302
Higher course	50	370	353	773
Domestic H. School	49	7,796	1,140	8,986
Elective pupils	—	353	60	413
Supplementary course	15	3,223	566	3,804
Total	307	78,228	25,320	103,855

Left school in the school year :	Governmental	Public	Private	Total
Regular course	17	11,243	6,101	17,361
Domestic H. School	10	1,470	299	1,779
Total	27	12,713	6,400	19,140

Business Schools Business schools of secondary grade are established for the purpose of giving young people the practical knowledge and skill necessary in various vocations, and much is left to the discretion of the founders as to the systems of schools in order to suit the special needs of different industries, trades and localities. The courses may extend from two to five years according to the nature of the school. A period of not longer than one year may be added to the maximum prescribed course. Further provisions are allowed to meet the needs of those who desire to take only a part of the curriculum, for those who, after completing the prescribed course, still desire to remain for further study, and for those who wish after completing the course of a middle school or girls' high school, to enter a business school with the object of receiving business education; and lastly for those who wish to receive instruc-

tion in a simple way for only a short period.

On March 1, 1934 there were 1,041 business schools. The figures for the years 1930-1934 are given below:

Year	Schools	Pupils
1934	1,041	316,846
1933	1,024	298,893
1932	1,003	292,015
1931	975	288,681
1930	957	280,904

Business schools are divided into two classes, A and B. Those schools which belong to A class admit boys and girls who have completed the course of the ordinary elementary school, while those which belong to B class admit those who have completed the course of the higher elementary school. And they are of six kinds, namely, Technical, Agricultural, Fisheries, Commercial, Navigation and Practical. Figures relating to these business schools in 1933-1934 are given below.

BUSINESS SCHOOLS (A)

	Schools	Teachers	Pupils	Graduates	Applicants	Admitted	Left school
Technical	95	2,358	35,441	6,914	24,519	10,657	2,100
Agricultural	240	2,817	48,919	14,143	20,692	17,228	2,790
Commercial	292	6,337	148,628	26,300	71,076	39,852	12,957
Navigation	10	142	2,434	614	850	727	164
Fisheries	12	143	1,986	408	481	573	167
Practical	190	2,526	39,574	15,330	21,360	17,584	2,263
Total	839	14,323	276,982	63,709	138,978	86,621	20,441

BUSINESS SCHOOLS (B)

	Schools	Teachers	Pupils	Graduates	Applicants	Admitted	Left school
Technical	29	241	5,323	1,511	5,971	2,429	554
Agricultural	96	769	17,308	5,229	7,333	6,675	1,080
Commercial	44	473	11,650	3,338	7,442	5,166	1,019
Navigation	1	10	62	33	124	124	88
Fisheries	1	—	44	9	18	18	21
Practical	31	341	5,477	2,983	4,164	3,653	356
Total	202	1,834	39,864	13,203	25,052	18,065	3,118

Of these schools, 14 technical, 13 agricultural, 134 commercial, and 131 practical schools were under private management.

According to the report of the Business Education Bureau, Ministry of Education, the number of business schools on April 20, 1934, was 1,025 and that of students 342,299; (a) 821 schools with 303,537 students, (b) 206 schools with 38,762 students. Of the total, 294 schools were established by private bodies or individuals, where students numbered 100,011.

Business Continuation Schools The object of these schools is to give to boys and girls engaged in vocations after graduation from the ordinary elementary school useful knowledge and skill relating to these vocations and at the same time to furnish education necessary in daily life. Their courses are technical, agricultural, commercial, navigation, fisheries and sewing; each school providing one or even all of these. The whole course is divided into two terms, the first extending over two years and the second over two or three years according to the nature of studies. The number of hours

taught in a year ranges between 200 and 420 in the first term, and 160 and 420 in the second, according to studies and the grade of the class. Those who have completed the ordinary elementary school or are up to that standard may be admitted to the first term, and those who have completed the course of the first term and the higher elementary school or are up to the same standard may be admitted to the second term.

A business continuation school may, if local circumstances require, provide itself only with the first or the second term. It may give further instruction to those who have completed the second term. Under special circumstances, a business continuation school of higher grade may be established for the purpose of giving specialized teaching.

The number of business continuation schools and that of their pupils for the years 1930-1934 were as follows:

Year	Schools	Pupils
1934	15,140	1,271,530
1933	15,091	1,270,874
1932	15,083	1,271,971
1931	15,248	1,277,338
1930	15,284	1,226,835

BUSINESS CONTINUATION SCHOOLS, 1932-1933

	Schools	Teachers	Pupils	Graduates	Entrants	Left School
Technical	98	397	13,179	5,787	11,356	3,646
Agricultural	12,160	16,204	967,767	322,371	469,146	83,165
Commercial	535	922	53,262	22,308	48,168	18,836
Navigation	1	2	78	19	40	-
Fisheries	248	176	16,877	5,224	8,025	1,835
Sewing	407	811	25,938	11,460	16,820	3,475
Tech. & Agri.	86	162	10,631	3,465	5,653	1,101
Tech. & Comm.	181	590	32,295	12,521	32,681	11,748
Tech. & Fisheries	1	-	36	15	11	8
Tech. & Sewing	1	9	173	116	105	16
Agri. & Comm.	608	1,322	66,507	22,103	35,670	8,676
Agri. & Fisheries	448	492	43,385	13,625	22,015	4,530
Agri. & Sewing	176	291	13,601	4,439	7,499	1,075
Comm. & Fisheries	33	65	2,783	948	1,812	568
Navi. & Fisheries	2	6	143	46	71	10
Fish & Sewing	11	11	1,118	197	853	64
Tech. Agri. Comm.	65	261	10,655	3,227	6,210	1,286
Tech. Agri. Fish.	2	26	1,326	411	830	161

	Schools	Teachers	Pupils	Graduates	Entrants	Left School
Tech. Comm. Fish.	8	26	1,437	435	688	117
Tech. Comm. Sewing	2	6	154	71	124	54
Agri. Comm. Fish.	53	124	7,598	2,207	3,970	891
Agri. Comm. Sewing	4	11	452	185	248	67
Tech. Agri. Comm. Fish.	10	37	2,075	673	886	190
Total	15,140	21,951	1,271,530	431,853	672,876	141,569

Higher Education

The institutions for higher education are higher schools, universities, colleges, and higher trade and industrial colleges.

Higher normal schools, institutions for training teachers of higher education, post-graduate or supplementary courses in secondary educational institutions and higher grade classes of the special educational institutions are mentioned under other headings, though they might be included here with the other higher educational organs.

The number of schools under this heading, higher normal schools and teachers training institutions and that of students on March 1 of each year follow:

Year	Schools	Students
1934	257	184,473
1933	261	183,792
1932	254	183,809
1931	258	183,952
1930	254	179,038

Higher Schools (Koto Gakko) The higher school is primarily an institution whose object is to complete the general education of young men. But it is as a matter of fact a preparatory school for universities or higher trade and industrial colleges in present-day Japan. No women are admitted. It is divided into two courses, the higher and the lower. The former extends over three and the latter over four years, making seven in all. A post-graduate course of one year may be taken after the higher course. Some

schools have the higher course alone. On May 30, 1934, the higher schools with the higher course alone numbered 24, while those with both lower and higher courses numbered 8.

The entrance requirements for the lower course are practically the same as those for the middle schools. The higher course is divided into the literature and science courses and a candidate must be one who has completed the lower course of the same school or one who has completed the fourth year of the middle school or whose scholastic attainments are equal or superior to the same standard.

There are about the same number of preparatory courses of universities which correspond to higher schools and are directly attached to universities. The following figures for 1933-1934 refer to the higher schools only.

HIGHER SCHOOLS (1933-1934)

Schools	32
(Schools which have lower course)	(8)
Teachers	1,279
Lower Course	154
Students	17,753
Lower Course	2,547
Graduates	5,519
Lower Course	569
Applicants	31,597
Lower Course	3,666
Entrants	5,705
Lower Course	627
Left School	517
Lower Course	112

Of the 32 schools, 25 are governmental, 3 public and 4 private.

Universities A university (Dai-gaku), in its regular form, consists of

several faculties, but a single faculty may also constitute a daigaku. Each faculty is required to have a post-graduate course, and in those universities which include several faculties a university hall may be established for keeping the various post-graduate courses in touch with one another. Under special circumstances a preparatory course may be provided.

Admission to a university is extended to the graduates from higher schools and from preparatory courses of its own, and to those who have the same scholastic attainments. When a student has studied in the university for three years or more (four years or more in the faculty of medicine) from the date of his entrance, and has passed a prescribed examination, he may assume

the degree of "Gaku-shi" (lit. "learned gentleman") or Bachelor. He is also qualified to enter the post-graduate course. In many universities facilities are provided for those who wish to pursue studies only in some particular subjects according to prescribed regulations.

A university is authorized to confer a doctor's degree on persons who have pursued studies for a period of two years or more in the post-graduate course and whose theses have been approved by the faculty council. Those who have not pursued studies in the post-graduate course may also submit theses and apply for doctor's degrees. The degree is conferred when the faculty council is satisfied with the theses.

UNIVERSITIES, March, 1934

	Professors	Students & Pupils	Graduates	Applicants	Entrants	Left school
GOVERNMENTAL:						
Tokyo Imperial	672	8,369	2,296	5,297	2,726	370
Kyoto Imperial	528	5,710	1,319	2,389	1,958	466
Tohoku Imperial	254	1,612	473	875	553	119
Kyushu Imperial	262	1,949	550	1,113	658	180
Hokkaido Imperial	296	2,351	690	3,923	752	81
Osaka Imperial	196	1,135	243	608	375	60
Niigata Medical	41	330	63	126	91	12
Okayama Medical	41	447	94	158	114	13
Chiba Medical	52	641	147	866	191	16
Kanazawa Medical	57	477	109	549	138	7
Nagasaki Medical	61	499	125	657	127	3
Kumamoto Medical	38	333	72	112	107	12
Nagoya Medical	57	376	100	88	88	6
Tokyo Commercial	182	2,034	641	2,704	684	63
Kobé Commercial	44	618	203	329	192	19
Tokyo Technical	109	529	145	339	191	15
Tokyo Literature and Science	112	294	85	140	102	19
Hiroshima Literature and Science	82	297	78	190	117	23
Total	18	3,084	7,423	20,463	9,164	1,443
PUBLIC:						
Kyoto Medical	54	665	170	1,354	183	7
Osaka Commercial	57	767	228	963	252	22
Total	2	1,432	398	2,317	435	29
PRIVATE:						
Keio-Gijuku	279	6,614	2,012	5,062	2,276	407
Waseda	370	7,986	2,715	8,510	3,102	495
Meiji	160	3,710	1,261	1,898	1,519	341
Hosei	177	2,396	860	1,464	1,097	334
Chuo	146	2,408	850	1,137	887	290
Nippon	331	4,186	1,203	2,833	2,047	656

	Professors	Students & Pupils	Graduates	Applicants	Entrants	Left school
Kokugakuin	89	551	213	389	252	41
Doshisha	91	1,459	409	813	590	155
Tokyo Jikei-kai Medical	64	1,273	352	2,785	354	34
Ryukoku	86	714	240	314	244	80
Otani	80	512	157	234	175	43
Senshu	134	887	175	650	510	270
Rikkyo	115	1,423	425	800	483	69
Ryumei-kan	129	1,015	365	739	631	289
Kansai	126	1,482	383	891	683	286
Takushoku	97	781	285	414	307	153
Risshio	95	381	124	145	144	39
Komazawa	63	484	178	117	110	17
Tokyo Agricultural	72	588	213	557	272	36
Nippon Medical	55	975	284	1,944	332	33
Koyasan	48	215	96	95	83	28
Taisho	115	588	184	179	175	49
Toyo	71	304	107	204	119	63
Jochi	72	217	78	120	101	65
Kansai-gakuin	25	401	180	350	237	46
Total	25	3,090	41,560	13,349	32,644	16,795
Grand Total	45	6,285	70,893	21,170	55,424	26,894

The oldest of the 46 universities is Tokyo Imperial University, which was founded in 1886. Keio-Gijuku and Waseda were founded much earlier, but they were raised to the present standard in 1920 according to the ordinances enacted at that time.

Of the total number of students and pupils, that of regular university students was 47,841 and that of pupils in the preparatory course or elective courses was 23,052.

The following figures as they stood on March 1, 1932 and 1933 show the number of students in these universities classified according to faculties.

	1933	1934
Post graduate course	2,071	2,133
Law	8,185	8,404
Medical Science	7,707	7,840
Science	1,061	1,101
Agriculture	2,368	2,443
Economy	5,621	5,816
Commerce	4,842	4,971
Law and Literature	4,218	4,326
Politics and Economy	1,303	1,277
Technology	3,880	3,958
Literature	5,392	5,287
Law and Economy	588	637
Science and Technology	747	753
Literature and Science	556	590

Tokyo Imperial University

To give an idea of Japanese universities the following information on Tokyo Imperial University is given here.

The university is situated in Hongo, Tokyo, occupying about one hundred acres. It fell a victim of the quake-fire of 1923, and one-third of the total floor space of the entire buildings was thrown out of use, while the remainder had to be repaired.

Besides ¥2,000,000 appropriated by the Government for immediate emergencies, the extraordinary session of the Diet held in the summer of 1924 made a grant of over ¥40,000,000 to enable the university to complete reconstruction in about 15 years. At present the restoration of all buildings, books, equipments is nearing completion.

History In 1854 the Tokugawa Shogunate opened the Yogaku-sho or an institute for foreign learning. The name of the institution was changed several times; for instance, the Kaisei-gakko in 1868, the Daigaku-nanko in 1869, the Tokyo Kai-

sei-gakko in 1874. Another institute was opened by the Tokugawa Shogunate in 1857, which was called the Shuto-kwan or an institute for vaccination. This in time developed into a medical school and became known in 1874 by the name of the Tokyo I-gakko or Tokyo Medical School. In April, 1877, the above two institutions were merged into one institution, known by the new name of the Tokyo Daigaku or Tokyo University. A little later the Tokyo Law School and the Technical College were united with it under the name of the Imperial University in March, 1886. The university had five faculties: law, medicine, engineering, literature, and science. The Tokyo Agricultural and Forestry School was incorporated into it in 1890, and in June, 1897, the university assumed its present name of Tokyo Imperial University.

Organization The university is a State institution and is organized in accordance with the Government's requirements for a university. It is composed of 7 faculties: law, medicine, engineering, literature, science, agriculture, and economics.

Besides the 7 faculties above mentioned there is a library in connection with the university. Hospitals and Dispensaries are connected with the Faculty of Medicine. An Institute for Historical Compilation is a part of the Faculty of Literature. Connected with the Faculty of Science are the Botanical Garden and the Marine Laboratory. Forests, farms, and the Institute for the Training of Agricultural School Teachers, are connected with the Faculty of Agriculture.

The Institute for the Study of Infectious Diseases, the Institute of Aeronautics, the Tokyo Astronomical Observatory, and the Earthquake Research Institute are also institutions attached to this university.

The Faculty of Law includes the 2 courses of law and politics, with 34 professorial chairs. The Faculty of Medicine includes the 2 courses of medicine and pharmacy, with 35 professorial chairs. The Faculty of Engineering includes the 10 courses of civil engineering, mechanical engineering, naval architecture and engineering, aeronautics, technology of ordnance, electrical engineering, architecture, applied chemistry, technology of explosives, mining and metallurgy, with 58 professorial chairs. The Faculty of Literature includes the 19 courses of Japanese literature, Japanese history, Chinese philosophy, Chinese literature, Oriental history, Occidental history, philosophy, Indian philosophy, psychology, ethics, theology and history of religion, sociology, pedagogics, esthetics and history of fine arts, philology, Sanscrit literature, English literature, German literature, and French literature, with 41 professorial chairs. The Faculty of Science includes 10 courses of mathematics, astronomy, physics, chemistry, zoology, botany, geology, mineralogy, geography, and seismology, with 41 professorial chairs. The Faculty of Agriculture includes the 6 courses of agriculture, agricultural chemistry, forestry, veterinary medicine, fishery, and agricultural economy, with 42 professorial chairs. The Faculty of Economics includes the 2 courses of political economy and commerce, with 17 professorial chairs.

Those of adequate learning, aged 19, or above, who are desirous of attending the lectures or experiments for one or more subjects prescribed in the faculty courses, may be admitted as elective pupils in the Faculties, but only when there are vacant seats.

Auditors may be admitted to the faculties on application, when the study of the students is not inconvenienced by their presence. They

must conform with the conditions prescribed by the faculties, unless they are entrusted by the Japanese or foreign governments. In addition, there are practical courses of agriculture, forestry, and veterinary medicine in connection with the Faculty of Agriculture. Applicants for admission must be graduates from middle schools, or those who are recognized as having equal attainments.

Students who remain in one course for more than 6 years (in the course of medicine, 8) are struck off the school roll. The practical courses in the Faculty of Agriculture run for 3 years.

The period for scientific research by students in the University Hall is fixed at 2 years. If their research necessitates the prolongation of this period, the President may permit it, on their application, to the extent of 5 years. They are under the control of the dean of the faculty whose curriculum they follow. As to their teacher or teachers, the faculty concerned decides.

The university officials are the president, 234 professors, 156 assistant professors, 3 secretaries, 1 administrative official, 5 officials for student affairs, 2 librarians, 284 assistants and 29 minor officials.

In May, 1934 the number of students was 8,050 in all. Post graduate students were: law 71, medical 22, technical 28, literature 374, science 97, agricultural 56, and economics 28. Under-graduate students were: law 2,358, medicine 694, technology 1,039, literature 1,284, science 351, agriculture 1,034, and economics 1,290.

Tuition is ¥120 a year for under graduates and ¥75 for post graduates.

Annual salary of the professors is from ¥1,130 to ¥4,050 besides the stipend attached to a chair from

¥500 to ¥1,600.

The Budget The budget for the fiscal year 1935-1936 is as follows:

REVENUE	
Ordinary	
From the Government	¥3,728,852
For business teachers' training	89,783
Miscellaneous income	4,070,520
Total	7,839,155
Extraordinary	
From the Government	120,000
From University forestry	83,460
From the Endowment Fund	795,817
Contributions	80,000
Total	1,079,277
Total revenue	8,918,432
EXPENDITURE	
Ordinary	
Salary	¥2,174,305
School disbursements	5,210,401
Salary of foreign professors	71,322
Pension allotment	375,374
Miscellaneous	7,753
Total	7,839,155
Extraordinary	
Buildings and repairs	811,629
Equipment and others	257,648
Total	1,079,277
Total expenditure	8,918,432

University Library Before the 1923 quake-fire the library contained approximately 700,000 volumes of books, but most of them were destroyed by the disaster. In order to make the loss good Marquis Yorimichi Tokugawa offered the university the whole of his Nanki Library with its precious collection of about 100,000 volumes, mostly Japanese and Chinese books. Contribution of books from nations of the world of over 325,000 volumes followed. The cases of books received from the British Committee for collecting English books financed by the British Government amounted to 271 in 1932. Gifts of books from all parts of the Empire amounted to 220,000 volumes, including those of the Nanki Library. The acquisition of books by purchase, including those bought with the Gov-

ernment Fund and the Rockefeller Fund reached over 495,000 volumes.

In December, 1924, Mr. John D. Rockefeller, Jr. of New York offered a fund of ¥4,000,000 for the reconstruction of the library. The plan of the new library was completed in 1925 and the building in November, 1928. The building is fire-proof and earthquake-proof, and has a floor-

space of 5,100 tsubo. The largest reading room contains seats for over 1,200 persons. The number of books now exceeds 1,000,000 volumes.

Summary of Doctor's Degrees The following is a summary of doctor's degrees awarded during the past 46 years, or from May, 1888 to the end of 1934.

Name	Totals	Dead	Surviving March, 1932	Awarded in 1932-1933	Awarded in 1933-1934
Dr. of Laws	277	80	192	5	6
" " Literature	284	87	188	9	13
" " Science	506	72	394	40	29
" " Technology	675	157	488	30	28
" " Agriculture	297	31	244	22	25
" " Forestry	50	11	38	1	3
" " Medicine	6,949	381	5,785	783	783
" " Pharmacology	88	20	63	5	3
" " Veterinary	35	19	15	1	—
" " Economics	36	—	31	5	6
" " Commerce	11	—	9	2	3
" " Political Science	2	—	2	—	—
Total	9,210	858	7,449	903	899

Colleges, and Higher Trade and Industrial Colleges "College" is the usual translation of the Japanese "Semmon Gakko" or Speciality School. The required length of the course of a college is three years or more. For admission to an art or music school, the completion of the third year of the middle school or the girls' high school or the possession of equal or higher scholastic attainments is required, while for admission to all other colleges the completion of the course of the said second grade schools or similar or higher scholastic attainments is required.

In March, 1934, there were 117 colleges, 8 of them being founded and maintained by the Government, 9 by public bodies and the rest by private bodies. They may be classified as follows according to their nature:

Pharmacy	7
" " for women	5
Medical Science	5

" " for women	3
Dentistry	5
" " for women	2
Medical and pharmacy, for women	1
Nursing for women	1
Languages	3
Literature	6
" " for women	5
Religion	11
Christian Theology	3
Painting and other fine arts	1
Music	3
Commerce	1
Commerce, Literature, Religion or Theology	5
Law, Economy, Commerce, Industry	13
Agriculture	1
Colonization	1
Mathematics and Chemistry	1
Meteorology	1
Athletics	2
Fencing and Judo	1
Literature and Domestic Science, for women	14
Literature and Science, for women	2
Domestic economy, for women	1
Sewing and Handiwork, for women	10
Total	117

The following table shows the movement of the college students, classified according to their course of study, in 1933-1934.

Course of Study	Students		Graduates		Applicants		Entrants		Left school	
	male	female	male	female	male	female	male	female	male	female
Medical Science	4,261	1,996	938	891	10,069	496	918	276	96	69
Pharmacy	2,718	2,410	776	480	5,472	1,100	889	661	80	186
Dentistry	3,924	377	907	156	2,708	1	42	1	159	38
Law	10,933	73	2,816	20	8,077	26	6,282	23	3,111	16
Economy	1,210	—	561	—	788	—	681	—	408	—
Commerce	9,862	13	2,436	4	8,435	6	4,494	4	1,660	4
Literature	4,903	2,956	1,310	886	4,233	1,214	2,087	859	997	319
Mathematics and Chemistry	115	58	7	11	563	28	134	14	156	5
Domestic Science	—	3,241	—	926	—	1,999	—	1,352	—	597
Sewing	—	1,495	—	479	—	904	—	620	—	183
Handiwork	—	523	—	119	—	359	—	269	—	85
Religion	1,897	—	456	—	873	—	739	—	221	—
Fine arts	710	48	142	18	751	21	136	17	13	6
Music	82	189	20	46	34	50	25	35	11	14
Athletics	598	58	100	15	468	27	166	24	37	—
Agriculture	626	—	186	—	881	—	245	—	33	—
Colonization	97	—	24	—	92	—	84	—	72	—
Nursing	—	53	—	22	—	56	—	22	—	8
Meteorology	14	—	14	—	—	—	—	—	—	—
Industry	722	—	198	—	1,385	—	280	—	78	—
Normal	3,562	379	894	120	3,232	143	1,326	119	908	44
Shinto	311	34	93	9	190	14	82	13	19	—
Total, 1934	46,455	13,894	11,578	3,652	48,251	6,444	19,510	4,309	8,059	1,484
Total, 1933	50,488	16,853	12,127	4,502	55,590	10,457	21,716	6,794	10,542	2,046

The number of Higher Trade and Industrial Colleges and that of their professors and students was as follows in the same school year.

Kind	Colleges	Professors	Students	Graduates	Applicants	Entrants	Left school
Technical	19	863	7,521	2,321	17,433	2,598	236
Agricultural	12	481	3,806	1,330	8,325	1,469	112
Commercial	21	681	10,275	3,064	15,805	4,013	563
Navigation	2	121	1,480	289	1,479	198	23
Total, 1934	54	2,146	23,082	7,004	43,042	8,278	934
Total, 1933	54	2,123	22,546	6,708	40,664	8,213	1,034

Other Education

Besides the schools stated above, there are kindergartens, schools for the blind, schools for the deaf and dumb, and miscellaneous schools.

Kindergartens Kindergartens are found chiefly in larger towns. With general social progress, however, the necessity of their improvement and diffusion being greatly felt in spite of the recent financial depression, an Imperial Ordinance for Kindergartens has lately been issued to encourage their further development. Kindergartens receive chil-

dren from 3 years of age to school age of full six years of age.

The following table gives the number of kindergartens and that of children attending in the years 1930-1934:

Year	Kindergartens	Children
1934	1,786	133,735
1933	1,708	129,001
1932	1,622	126,564
1931	1,510	121,975
1930	1,397	114,749

Education for the Blind and the Dumb It has been the educational policy of the Japanese Government since